



FRIDAY, JUNE 12.

Contributions.

Frankfort-Offenbach Electric Railroad.

FRANKFORT-ON-THE-MAIN, March 9, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The electric railroad between this place and Offenbach has now been in operation for 11 months. It is seven kilometres (4.2 miles) in length. It consists of a solidly constructed single line tramway of 1 metre gauge, with three turn-outs in the length, besides the end side-tracks. The rail is of the usual European tramway pattern, with a deep, narrow flange groove, which will not allow the heavy wheels of European vehicles to drop into it, but would be liable to give trouble to light American buggies. The track is laid along one side of the roadway; and in the closely-built, narrow street of the village of Ober-rad, about midway of its length, must occasionally give trouble from its close proximity to houses and to the ends of the narrow side streets. It crosses two steam railroads at grade, at one of which crossings gates are provided for it in addition to those always placed here at steam railroad crossings. The cars are, in outward appearance, very much like our horse cars; but the seats are arranged face to face, double seats on one side of the car and single on the other; the doors being at one side of the centre,

The car dynamo is placed, as indicated on the view, in a locked box under the car midway between the axles, and communicates its motion to one of the latter by gearing placed outside the wheels (between them and the axle boxes), the speed of the dynamo being geared down apparently to one-seventh or one-eighth its own angular velocity by four gears, two being placed on an intermediate shaft between the main dynamo shaft and the car axle. These gears are rather noisy at high speeds.

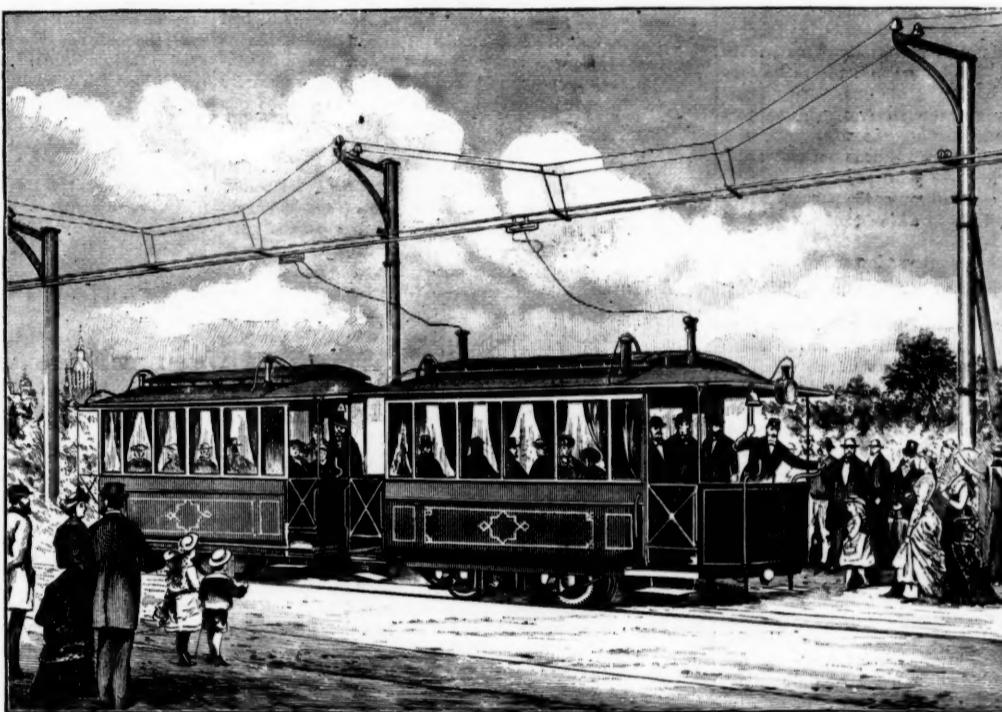
The turn-outs, both in the track and in the conductor, are automatic. The track is arranged as on many horse-car tracks, with a fixed switch point, so placed that a car running toward it will always go to the right. The switch in the conductor is held by a spring, so as to throw the shuttles always into the right-hand tube, the shuttle pushing the switch aside in coming out of it. The main tube has a tapering slot cut into its side deep enough to allow the switch tongue to catch the point of the shuttle.

The trains run every 15 minutes, and consist of one and two cars alternately, which run pretty regularly full. The capacity of the present apparatus is, I am informed by Messrs. Siemens & Halske, the well-known electrical firm of Berlin, who built and are now running the road, four trains of three cars each at 15 kilometres (about 8 miles) per hour, or perhaps somewhat faster, if the police would permit. The two-car trains are generally run with both cars coupled to the conductor, and not with one, as shown. The cars are at present run at an average speed of 7.2 miles per hour, including stops. This speed with the number of trains would not give a train every 15 minutes, and in point of fact I think they do not leave regularly at that interval.

The running is controlled by the driver on the front platform, who turns the current on and off with a brake handle

The cost of operation of the electric road I have not been able to get at, as Messrs. Siemens & Halske are—not un naturally, perhaps—reticent on this point; but the general opinion here among the well informed seems to be that it is not going to pay interest on the investment—at least under the present circumstances. This is in spite of the fact that the cars are nearly always well filled; so much so that on Sundays it is very hard to get even standing room, without going some time beforehand and getting one of the "preference" tickets which are given out in the terminal waiting rooms up to the capacity of the next car. The fare itself is paid on the car, the conductor giving a ticket for the same, which is inspected by a checker who gets on at some point or other of the route. This is also the mode of operation on the city horse-cars. Passengers must hold their tickets (the latter are not taken up) until the trip is over, and any who haven't them must pay again: while the conductor is liable to dismissal if any such are found, to whom it appears that he has not given tickets. The tickets show by an arrangement like punching the part of the route traveled over, and also the amount collected from the passenger, so that they are a protection to the stranger against any inordinate demand for fare. They are made of thin paper and numbered consecutively, so that re-presentation on a second trip is practically impossible. As they are generally to be seen scattered about on the ground at the termini, like train orders in one of our large railroad yards, reissuance by the conductor might be a possible difficulty were it not for the route punching, which would make this difficult, apart from the detection by the checker.

Such a system must cost little for checking, as the checker serves a large number of cars, while it must be very effectual, as the conductor has to turn in an amount corresponding



A GERMAN ELECTRIC STREET RAILROAD.

while each platform has a single set of seats, viz., for three persons, and there is nominal standing room for 12 persons besides, the total being 30. The seats on the platforms have a side protection by a glass extension of the car-side. This feature is, however, objectionable, as it causes the wind to draw round the necks of the persons sitting in them in a way which can only be pleasant in very warm weather.

The electric conductor is carried overhead along the curb line of the street. It consists of a gas pipe of about 1½ in. diameter, with a slot in the lower side. The manner of support by a ½-in. wire rope fastened to insulators on the posts, and the connection of the car with the runner in the tube, is shown in the view herewith. The runner is a shuttle-shaped bolt with two narrow lugs, which project through the tube and carry a rectangular frame, to the lower bar of which the electric conductor to the car is attached by a slide, which causes its pull to come always on the head end of the frame, whichever way the car is moving, thus avoiding any tendency to jam the shuttle in the tube. The electric conductor to the car is inclosed in a wire rope, from which it emerges about a foot from the runner frame. The wire rope is then continued by a slack piece connected to the middle of the upper bar of the runner frame, presumably to avoid leaving the runner behind in case the electric connection parts on a down grade, where the cutting off of the current would not stop the car.

The posts are set at a maximum distance of a little over 100 ft. on straight line—closer together on curves in proportion to their sharpness. Round these the tube bends without any particular attempt at uniform curvature, which is of course unnecessary in view of the loose nature of the connection to the car.

The conductor tube is double, as shown. The connection with the car take current from one tube and return it to the other (the tubes have no other connection than through cars).

which fits over a square head on an upright shaft like an ordinary brake shaft. The handle is kept by the driver like a key, so that the car can not be tampered with when he is absent from his place. He brakes with his right hand with a similar handle. He also rings a bell over his head when it seems necessary to give warning of the approach of the car.

The driving station is about midway of the run. The engine is a double horizontal one of 250 horse-power, of which only one-half is kept in use, developing a maximum of 100 horse-power to run eight cars. The engines were built with condensers attached, it being intended to condense with water from wells on the premises; but the supply being insufficient, the condensers are not used.

The cost of the electric conductor, set up with its supports, is 12 marks, or \$3, per metre, say \$1 per foot, with ordinary day labor at 50 cents per day, skilled labor 75 cents to \$1; and cost of materials averaging, taking wood into account, not less than with us at present, and probably somewhat more.

I would like to call attention here to the relations indicated above between the price of labor and materials, raw or manufactured, in Germany and with us, comparatively. They show, I think, two things: first, that the efficiency of labor is less here, and second, that the laborer's share of the profit is not so great as with us. The latter is probably due to the slower methods of business—the less active turning over of capital—making a larger profit on single articles necessary to maintain the annual interest on the capital invested. I would note, however, that the above is only true of materials in large quantities. The smaller manufactured articles sold at retail cost only from one-fourth to one-half as much as with us, indicating again that the small dealer is in the same condition as the laborer, with a small proportion of the total profit, owing to the lively competition for the trade.

to the unreturned balance of tickets issued to him. The different rates of fares have tickets of different colors. By printing transfer tickets with a coupon to be detached by the second conductor, the system could be made applicable to connecting lines. Transfer tickets are issued here, but I believe it is effected by tickets printed by the company to which the transfer is made, for which the company issuing them to passengers is responsible to the party from whom the passengers received them.

As to the details of the electric transmission, I can give little information on account of the above-mentioned reticence on the part of the direction. What the arrangement of the current is at the passing tracks I cannot say, further than to surmise that it must pass through both branches continuously in equal amount. What the nature of the insulation of the two lines is at the frogs where the conductors cross, I cannot say.

In regard to regularity and certainty of operations, Dr. Siemens asserts, in a recent letter to a railroad journal, that the traffic is satisfactory in this respect, and I have no statistics to the contrary. In a recent address, however, to the local technical club (apropos of another motor), the speaker referred to the frequent interruptions of the traffic. My own observation has not been particularly favorable. I suppose I have seen the road in a way to observe the operation a dozen or fifteen times during the past five months. Among these were two round trips over it, on one of which the passengers had to transfer to another car both in going and coming, on account of a crossing out of order. The last visit I paid to it was to get some information, at which time I found the road had been three days out of operation for the purpose of repairs to the steam engine, as stated in a notice posted up. It has since been stated that a new machine is on the way, so that such an interruption may not occur in future. The occurrence appears a little singular, in view of the spare half of

the existing engine and a very liberal park of dynamos and boilers, and one which it might be supposed Messrs. Siemens and Halske would have learned to avoid after building seven electric roads in Ireland, Germany and Austria.

The chief objection to the system of cable and electric transmission of power seems to be the total stoppage of the whole traffic caused by an accident to the motor or conductor, the argument which George Stephenson used successfully against the cable system on the Liverpool & Manchester Railway. This brings these systems in unfavorable contrast for the purpose of street traffic with the Honigmann caustic soda locomotive, which, while free from escaping smoke or vapor, is equally efficient with ordinary steam dummies, carries much less dead weight than ordinary steam, compressed air, or ammonia engines, requires no fixed power transmitter, and yet has its power furnished from a central station, while in operation entirely independent of it. It is, moreover, perfectly safe against explosion or similar accident. I propose to give you some account of the latest developments of this motor in my next. In conclusion, I have to make my acknowledgments to Messrs. Siemens & Halske for the original of the illustration herewith given, and for information as above stated.

W. HOWARD WHITE.

The Breakage of Splice-Bars.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In view of the recent discussions about splice-bars and the breaking thereof, it may not be amiss for the writer to give his experience. Let us first study the wear on rails.

This wear is very probably in accordance with the five following laws:

First. That wherever a rail receives more support vertically at one point than at another, a depression in the head of rail forms over or near the additional support. Of this depression the length, depth and exact location as regards the support are determined by the uniformity of material in the rail as well as by the ballast used and the facility for draining the road-bed.

Second. That wherever the rail receives more support laterally at one point than at another, the wear on the rail near this point is greatest and the rail is deflected outwardly on both sides of the support.

Third. A low spot on one rail causes the formation of a low spot on the opposite rail just in advance of the original low spot (double track).

Fourth. Where the wheel encounters a low spot on one rail, it tends to move the track in the direction of that spot laterally.

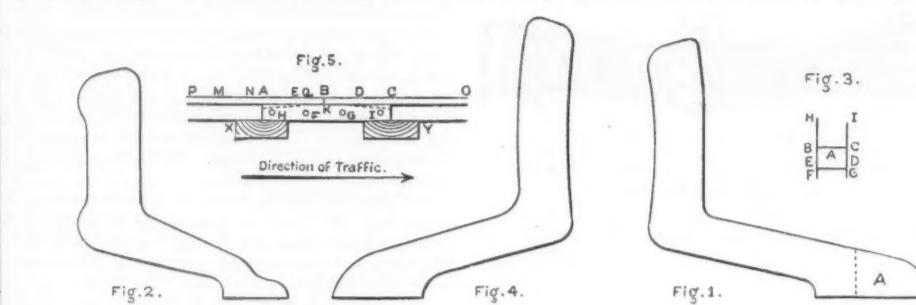
Fifth. The outer rails of the outer track wear faster than the inner ones, and all rails wear faster in cuts than on banks.

Theoretically, these laws are objectionable. As illustrating the first law practically, trial with a straight edge or with a micrometer screw, if you prefer, will show that a depression in the head of the rail exists over many cross-ties, but very seldom between them. Occasionally we find the head of the rail lower between ties than over them, but in such cases the straight edge applied to the upper surface of the rail flange will show that the rail is bent between ties and not compressed. It will also be found that a depression exists over or near nearly every guard-rail chair, partly due to the support afforded by the tie and partly to that of the guard-rail chair, but it is found to be greater where the chair is used than where it is not. As illustrating the second law, it is quite well known that wherever a Wharton switch safety casting is used by the side of a rail the rail soon becomes bent outwardly at both ends of the castings, and no amount of lining and spiking will hold it in line. It is further noticeable that where planks are laid by the side of rails to make a road crossing, the rails are bent outwardly at both ends of the crossing. Also that the rail has more short kinks between guard-rail chairs than it has on curves where no guard-rail chairs are used.* As illustrating the third law we find that when joints are allowed to remain low a depression forms in the opposite rail over the tie in advance of the joint. We have reason to believe that where a new rail is placed on the outside of a curve depressions begin forming at once similar in character and nearly opposite to those already existing on the old rail on the inside of the curve. It is well to mention the low spot forming opposite to the point of frog.

This law shows the necessity of true levels and the importance of having the track force so arranged as never to allow a joint to become low. As illustrating the fourth law, it is known that a joint allowed to remain low becomes deflected outwardly, and trial with a track gauge will show that the opposite rail has moved toward the joint. In other words, the track has moved laterally.

We know that the outer rail of double track wears faster than the inner. This is due to the support on the inner side of track being more regular. Rails wear faster in cuts than on banks, because little or no attention is paid to drainage, and it is impossible to give equal supports to rails unless drainage is perfect. As regards depression forming in the head of rail, they simply follow the well-known law that "a moving body changing its direction loses momentum." So if the rail deflects appreciably, laterally or vertically, the wheel changes direction in mounting the edge of the tie and causes somewhat of a blow. The manner in which the spikes hold the rail to the tie, the width of the tie, the kind of ballast and the uniformity of material in the rail, will all be concerned in the length, depth and location of this depression. Sometimes it occurs over one edge of the tie, sometimes over the other, sometimes over the centre of the tie and sometimes it extends all over three places.

* After the rail-head has worn down sufficiently for the wheel flange to strike the splice-bar, a hole wears in the side of the rail-head at the end of the fish-plate.



The tendency on American railways is toward heavier rails. It is quite probable that this will not prove the most economical way of increasing the life of rails. English roads use heavier rails than we do, and are said to obtain good service; but they also pay more attention to drainage and to the size of ballast. In other words, the character of the support is more nearly uniform than with us. Moreover, it is said that there is a tendency on the part of English roads to use lighter rails than formerly was the case.

In the manufacture of large rails it is more difficult to obtain uniformity of material than it is with small ones. We can see in any rail mill that long after the base and web of rail have become black, the head is still red. In other words, by the present method of manufacture the tension material (base) is hardest, while the compression is softest, taking longest to cool. The reverse should be true, and it is a debatable question whether it will not pay to arrange some form of oil or water bath through which to pass the head of rail as it comes from the rolls, and thus temper it to any desirable hardness. The great trouble with the American rail, and perhaps with that of English make of recent date, is that it wears so as to show a wavy appearance on top in the sunlight. It has been proposed to remedy this by using a heavier section. This will undoubtedly serve slightly to prevent this wear, in that it will lessen the deflection between ties, thereby preventing a changing of direction in the wheel.

However, suppose we were using pine cross-ties, and found that the base of rail was cutting into the ties very badly. Should we in this case increase the size of ties or use a tougher timber? It seems to be a somewhat parallel case, when we find the rail wears in waves, principally because of lack of uniform material in the head, to strengthen them by increased section. I am inclined to think that with the same or softer material in the head of the rail the larger the head the softer the steel, other things being the same, the greater the depth of wave will be, and that it will be true economy to use a comparatively small rail of carefully made and tempered material. I know of a case in which a 56-lb. English rail outlasted two 67-lb. rails of American make, and is good to outlive another 67-lb. American make.

Having studied the wear on rails in general, we are now prepared to take up wear of splices and rail ends, and the breaking thereof. In observing a joint made of angle-bars, we find that the rail is mashed slightly from A to B, and greatly from B to C, the greatest depth of mash being near D on the edge of tie, or between D and C, the rail being mashed less at B than at E and D. We shall see that the rails are bent downward from A to B and from C to B, and further, there is an additional bend in the rail from F to K and G to K, and where the bolt-holes F and G are 8 in. apart, that the ends of rails, acting as a wedge, have forced the upper edges of the splice outwardly between F and G, while this is not the case between H and F and G and I; that the wear on the upper surface of the splice is appreciable above F and G and increases quite rapidly from F and G toward K.

Again, when this splice is placed in a testing machine with weight at B, the rails deflect more rapidly than does the splice. Again the rail fracture is almost invariably at N or Q, or at corresponding points on the other rail, just where the greatest elongation of fibres takes place, owing to the two distinct rail bends mentioned above.

To repeat, we find that with central bolt-holes 8 in. apart, after few months the plates, being too weak, take a permanent set both outward and downward from their true position. By this means the fibres at K become shortened at the rail ends, having no support, play up and down a while until they finally take a set downward from F to K and G to K. Then the wheels running into this hole increase the trouble and bend the rails down over the rigid corners of the splice at A and C from A to B and C to B. By this time the fibres at K have become much shortened. Then when one driving wheel is at P and the other at O, the splice bends upward over the fulcrums A and C, and the fibres at K tear apart. Any ordinary splice placed in a testing machine shows only about one-half the upward strength as it will for downward. To move these central bolts F and G nearer together would prevent much of this trouble. They should at least be brought sufficiently close so that when the splice is placed in a testing machine the rail deflection will be no greater than that of the splice. After this distance is determined in the testing machine, it would be well to try splices with central bolt-holes at different distances apart in the track. This only explains why so many splices can break from the top, whereas at first sight they should give way from the bottom. We frequently see it stated that splices always break from the top. This is a mistake; there is at least one splice in the United States that begins breaking from the bottom. A section of this splice is shown in fig. 2.

To explain why a splice of such section as fig. 1 always breaks from the top: Suppose in fig. 3 we take a beam of wood A, and at B and C hinge pieces D and E to join them at the points F and G with a rubber band. Then compress

them together at H and I. The strain on the beam A will be insignificant, and the elongation will all take place in the rubber. Now, in place of the beam A let us insert a piece of rubber the same size as the piece from F to G. Then compress the pieces H and I. The rubber F and G will elongate only about half as much as it did in the previous experiment and the rubber A will contract. Now, in the section of splice shown in fig. 1, there is much more material shown below the line of no pressure than there is above it.

The result is that the upper member receives all the strain, while the lower remains rigid. In this connection, when the portion A of the section fig. 1 was planned off the splice showed stronger in the testing machine than it did when this metal was allowed to remain. In other words, the two members of the splice were more nearly equal in strength, and hence the splice was stronger. If, however, we refer to fig. 2, we see the reverse, that the upper member is the strongest, and hence the lower member yields first. At first sight it is comparatively an easy matter to give the tension and compression members nearly the same amount of material. However, the more one tries this the more will he come to the conclusion that mathematical analysis will never give him the correct position of the line of no pressure and that it is purely a question of making splices of different sections and trying them in the track. In fig. 4 is shown the section of a splice that rarely breaks, but does so from the top. Of course, we could decide where the line of no pressure for the splice alone comes, or where it is for the rail alone. But when we combine the two structures and remember that bolts are sometimes tight and sometimes loose, that joints are sometimes high and low, it is impossible to obtain this line.

Suppose we have gotten the central bolt-holes, as well as the others, the right distance apart, and have the tension and compression members equal in strength, and have the upward and downward strength of the splice the same, we shall still have quite a large portion of the mesh that takes place on top of the rail to contend with. Suppose we were making a carriage drive, and were to place stones 12 in. apart in just such a position that the wheels were to run over them, and then fill between these stones with pebbles, we would soon find that the pebbles would yield, while the stones would remain rigid, and it would make very rough riding. Now, this is just what we do with the splice. From M to E the rail is supported by the tie, and, in addition thereto, we have introduced the portion of splice H F, between the base and head of the rail, thus making the rail much stronger at the web than at any other point. We have already seen that the support afforded by the cross tie caused a depression in the head of the rails, and that this depression is largely increased by a guard-rail chair on the outside of the rail. In the case of the joint we have the support afforded by the tie, and in addition thereto a support equal to at least three guard-rail chairs. At present the wheel in its passage encounters at A E the most rigid spot on the track, then passes over a portion E D only about half as strong as the rail itself, and immediately reaches a very rigid portion D C. The similarity between this and placing stones 12 in. apart in the driveway is complete. To bevel off the splice as shown by the dotted lines in fig. 5 would in effect be removing the stones from our driveway. In other words, the rigidity of the rail will be more nearly continuous. After this splice is bevelled off as shown, if the weight be applied at B and the splice bend downward, the rail, instead of bending from A to B and C to B over the rigid corners A and C, will have a more gradual bend, perhaps from B to M, and the shock of the wheel will not be so great. Again, when the wheels are at P and O, the rails, bending upward over the ties at x and y, instead of the fulcrums A and C, will move upward less at K if the splice be bevelled off, thus lessening the chance of tearing at K.

If any one who does not believe in this idea will sit by the track several days and watch the movement of the rail and splice up and down over the corners A and C under the passage of a train, he will be convinced that it is at least worthy of trial. The writer does not claim any originality for this idea; it was suggested to him by a track foreman.

R. R. B.

The Central Pacific Railroad.

PLYMOUTH, ENGLAND, May 20, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Since writing last I received a newspaper containing a copy of the lease to the Southern Pacific Company, and perhaps you will allow me space for a few further remarks.

I am a large shareholder in this company, and have been on the register for several years. I also hold a large amount of stock which has not been registered in my name; one-half of the stock I hold I purchased at over 90, the other half about 40, and I have never sold a single share.

Up to this time I have received no intimation from the Central Pacific office that such a lease has been granted, and although it is dated Feb. 17, 1885, Mr. Huntingdon, in writ-

ing to me March 11, 1885, does not mention it; but he concludes his letter with these significant words: "We conceive it to be our duty to hold strictly to the line of giving or withholding information to all stockholders alike, either by official communication or through the public press." How any board of directors can consider it to be their *duty* to withhold such important information from their shareholders, I cannot conceive; if they had said *interest*, it would be more intelligible.

I see that one pretext for leasing the Central Pacific to the Southern Pacific Company is that "the Union Pacific Railway Company has secured the control of the road known as the Oregon Short Line, and thereby secured an outlet to the Pacific other than over the Central Pacific Railroad, and thus in that respect placed itself in opposition to the interests of the Central Pacific." On this point I should like to remark that, feeling very uneasy at the continual fall in the price of the Central Pacific stock, and apparently without any reason, I wrote the President on Dec. 17, 1883, and on Jan. 9, 1884. Mr. Towne wrote that "the Governor has been absent from California for more than a year, which is the reason for your not hearing from him. You ask if we can tell the cause of the great fall in Central Pacific stock, and if there is anything in our relations with the Union Pacific to cause alarm. Everything is going on smoothly and harmoniously between the Union Pacific and our company; therefore, this cannot be one of the reasons for the depression in stock. My impression, however, is that it is caused by the general depression which is affecting nearly all the stocks on the board."

It appears to me that the reason why the Union Pacific Company has secured the control of the Oregon Short Line is that the Central has refused to carry through traffic over its line except at local rates, and that it has diverted through traffic from the Union Pacific by sending it over the Southern lines.

I have always looked upon the Central and the Union Pacific as forming parts of the best transcontinental road, and this seems to have been until recently the opinion of the directors, for in their report to the shareholders, dated June 1, 1883, they say: "The apprehension which seems to have been felt by some stockholders that the completion of other transcontinental lines may in time seriously affect the earnings of the lines owned by this company, does not appear to your directors to be well founded."

Considering that out of "the total length of the roads owned by the Central Pacific Railway Co. main line and branches as operated 31st December, 1883" (I quote from the report), 1,215.14 miles, no less than 883.23 miles represented the main line from San Francisco to Ogden, it must be to the interest of the Central Pacific to be on terms of the closest alliance and friendship with the Union Pacific, and I could well understand that it would be to the interest of the Central to lease its road to the Union Pacific for a long term of years or in perpetuity; and also that it would be equally advantageous to the Union to guarantee a good dividend to the Central Pacific in respect of such a lease.

The present lease is most unfair to the Central, its clauses are most obscure and contradictory, and the dividend of \$1,200,000, which is not payable until the first Monday in May, 1886, absurdly inadequate. It is true that provision is made for a further additional dividend to be paid if earned; but I for one have no expectation that any such additional earnings will be shown.

It appears to me that Messrs. Stanford, Huntington and Crocker have betrayed us and sacrificed our interests, and I am utterly at a loss to understand how the laws of any country can allow such a transaction to be consummated behind the backs, and without the consent of, the shareholders; but I am more astonished that public opinion in the United States does not render it impossible.

W. L. MARTIN.

The Preservation of Timber.

The following summary of the report of the Committee of the American Society of Civil Engineers on the Preservation of Timber has been issued. The report itself which is quite voluminous, will be presented at the approaching convention of the society at Deer Park, Md., June 24, but it is announced that any person desiring to discuss the subject, and informing the Secretary that he will do so, will be furnished with an advance copy of the report, whether he be a member of the society or not.

After a brief statement of the labors of the committee and of the evident necessity for the introduction of preserving processes on account of rapidly diminishing supplies of timber, a short history of the progress of the art is given, showing three principal methods of working, viz.:

1. Steeping.

2. Vital suction or hydraulic pressure.

3. Treatment in close vessels by steaming, vacuum, pressure, &c.

The experience in the United States is given in five tables, comprising the results, more or less conclusive, of 142 authenticated trials or experiments. In each case these are referred to at mere or less length in the text, sufficiently to give the reasons for success or failure, and the lesson taught. The five heads corresponding to the tables are:

1. Kyanizing, or use of corrosive sublimate.

2. Burnettizing, or use of chloride of zinc.

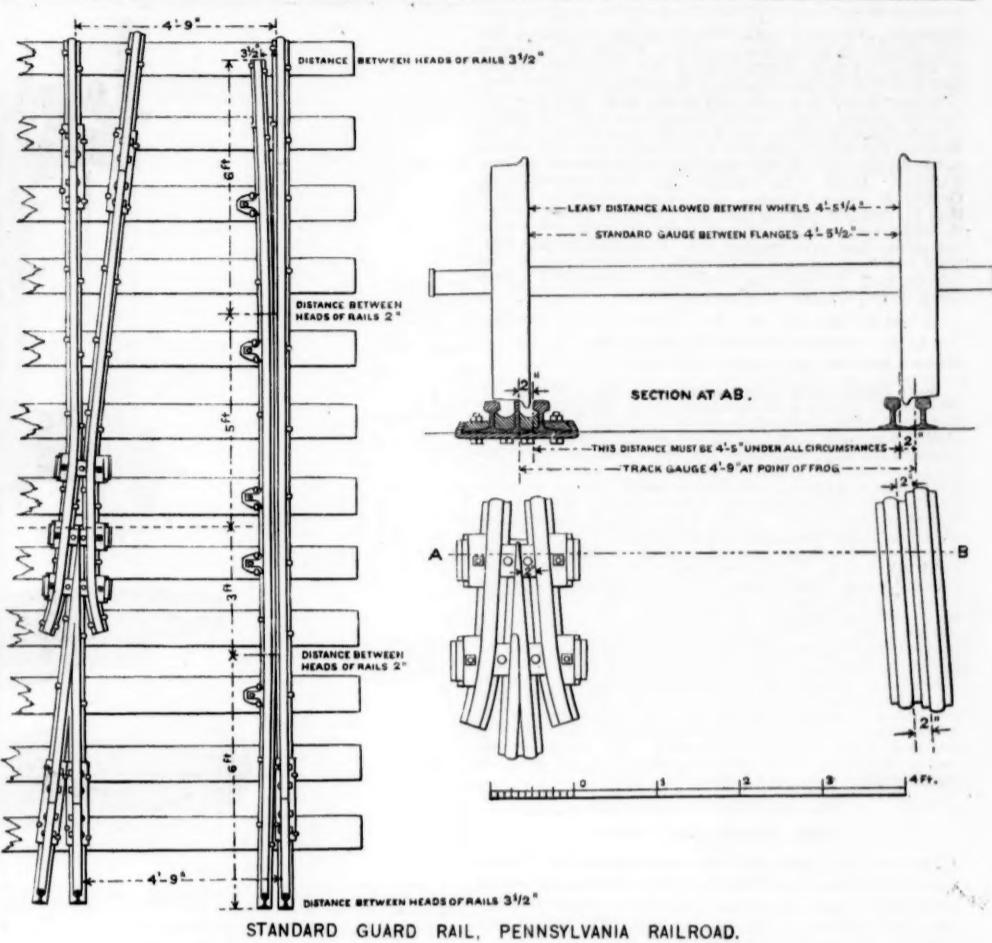
3. Creosoting, or use of creosote oil.

4. Boucherie, or use of sulphate of copper.

5. Miscellaneous, or use of various substances.

Of the first, *Kyanizing*, it is stated that an absorption of four or five pounds of corrosive sublimate per thousand feet, board measure, is considered sufficient, and it would now cost about \$6 per 1,000 ft. It is not recommended except in situations where the air can circulate freely about the wood, as in bridges and trestles, but in very damp locations (as for ties when in wet soil and pavements) its success is doubtful. Its cost when first used led to cheating, which for a time brought discredit upon it.

Burnettizing the committee do not consider the best adapted to use where the timber is exposed to the washing



STANDARD GUARD RAIL, PENNSYLVANIA RAILROAD.

action of water (as this removes the preservative); but, on account of its cheapness, it is probably to be preferred at the present time to any other process for the preservation of railroad ties. The Wellhouse, Thilmany and other modifications of the process aim at making the chloride insoluble, but are yet on trial. This process has been largely and successfully introduced in Germany. Experience shows the life of soft wood ties to be doubled and trebled by its use. Its cost in this country is about \$5 per 1,000 ft., board measure, or 20 to 25 cents per tie, and for the latter purpose the committee particularly recommend it.

The work must be well done; but some of the failures were from doing it *too well*; that is, from using solutions of too great strength, thus making the timber brittle.

A solution of 2 per cent., by weight, of chloride of zinc in water, is recommended.

Creosoting, or the injection of timber with hot creosote oil in a cylinder under pressure, is considered to be the very best process which has been fully tested, where *expense* is not considered. It is as yet the only one known which is sure to prevent the destructive attacks of the teredo or other marine animals, and to give absolute protection against decay in very wet situations. It is a somewhat expensive process, requiring for protection against the teredo from 10 to 20 pounds per cubic foot of timber, and costing from \$12 to \$20 per 1,000 feet, B. M. For resisting decay alone a cost of \$10 to \$14 is sufficient.

The *Boucherie* process, in which green timber is impregnated with sulphate of copper either by *vital suction*, *hydraulic pressure* or a *vacuum*, when well done, using a solution of 1 pound of sulphate to 100 pounds of water, has proved fairly successful.

Under the head of "miscellaneous," are classed 41 experiments with almost as many substances, sulphate and pyrolygite of iron, lime, resin, oil, tar, etc., but with as yet no commercial success.

The general principles laid down are, to select the process with reference to the subsequent exposure. Use *open-grained*, *porous* timber, and for that reason *in general* the cheaper woods.

Extract the sap and water to make room for the material to be injected, natural seasoning, except for the Boucherie process, being very desirable. Steaming takes the place of seasoning.

Use enough of the antiseptic to insure a good result, and then let the timber dry before using, as its durability will thus be increased. Do not hasten the work if it is to be well done. Protect ties or timber in the track as far as may be from water by drainage.

Contract only with reliable parties of established reputation, under a skilled inspector, who must be in constant attendance when the magnitude of the order warrants.

There is at the close a discussion of the question, Will any preserving process pay? This is answered in the affirmative. The Chairman of the Committee gives a careful estimate in one of the appendices in an actual case in this country; another general estimate is given based on European experience, and three other separate appendices give different methods of examining the question of economy and comparing values.

Other appendices (to the number of 20 in all) treat of the general question of destruction and conservation of forests, and give reports of the personal experience of a number of engineers, with methods pursued, apparatus used, etc.

Standard Guard Rail.—Pennsylvania Railroad.

This engraving is peculiarly one for which the convenient editorial formula may properly be used, that "the engraving itself is so clear as to require no further explanation." The difference in gauge of $\frac{1}{2}$ in. on the Pennsylvania system has required the standard distance between flanges to exceed by $\frac{1}{2}$ in. that which has now become the standard elsewhere (4 ft. 4 $\frac{1}{2}$ in.), but, it will be seen, does not require it to exceed the maximum of the limits of variation (5 $\frac{1}{2}$ to 5 $\frac{1}{2}$ ins.), which have been already adopted by the Master Mechanics'

Association, and which will be recommended for adoption by the Master Car-Builders' Association at the ensuing convention.

Competition of the Mexican Central with the Mexican Railway.

At the annual meeting of the Mexican Railway Co. in London, May 27, Mr. T. C. Sandars, the chairman, said in his speech to the shareholders:

The competition to which the opening of the Central Railway has exposed us is of two kinds. There is the competition for the American trade, and there is the competition for the European trade. For portion of the American trade such a railway as the Central, which is in connection with the American system, offers a natural inlet of imports into Mexico. For another portion of the American trade, where the centres of American production are near the American seaboard, Vera Cruz offers natural advantages. The Central Railway endeavors by the offer of low rates to attract to its benefit that portion of the American trade which would naturally pass through Vera Cruz. To meet this reduction of rates we also have been obliged to reduce our rates on such articles as cotton, petroleum, machinery and iron, which reach Mexico from the United States. We have not made our reductions all at the same time, nor have we made them at a uniform rate. We have studied article by article what to do, and when to do it; but some idea of the general character of the reductions made may be gained when I say that on many articles we have reduced our charges from \$54 to \$40 per ton. For the European trade it might have been thought almost impossible that the Central Railway should compete with us. From its point of nearest connection with the sea it has party to convey itself, and partly to get conveyed over American lines, the goods it seeks to attract from Europe over a distance of upward of 2,000 miles to Mexico, while our distance from port to capital is only 280 miles. To overcome this disadvantage of distance the Central Railway offers rates which it is enabled to offer by adopting, and by getting the lines in America connected with it to adopt, that system of cutting rates which is one of the most extraordinary features of the current history of American railway enterprise. As to what will be the consequences, and what will be the duration of a system which in many instances must mean the carrying on of business at a positive loss, I will not venture to offer an opinion. We here have nothing to do but with our own business, but when we come to contemplate the competition which we now endure, or may have to endure, we find ourselves beset with one special difficulty. What we want is to keep the trade of Vera Cruz to Vera Cruz, but we cannot do this unless Vera Cruz will help itself, and Vera Cruz weighs heavily its own business. It insists on exacting heavy landing charges, and it insists on imposing local dues quite apart from the national custom house duties. Some years ago, seeing in these high landing charges of Vera Cruz a serious impediment to Mexican commerce, the government of Mexico obliged our company, when it was rearranging some of the articles of our concession with us, to build a pier at Vera Cruz, over which we were to take imports at a most moderate charge, but we have never been able to use this pier for the purpose for which it was mainly intended. We could not take goods over our pier, take them to our station, and take them up to Mexico unless they passed through the Vera Cruz custom house, and we have never been able to get custom house arrangements made which will permit of our using the pier as it was meant to be used; the consequence is the Mexican nation has scarcely got any benefit by the pier which it forced us to make, and we are ourselves losing £7,000 a year by having to maintain it. The attention of the government, of Vera Cruz itself, and of the whole nation, has recently been most urgently directed to the great difficulties which are thus placed in the way of the trade of Vera Cruz, and I hope that before long it may be arranged that by the use of our own pier, and the

diminution of its local duties, Vera Cruz may be put in a fair way to carry on its business properly. We on our part shall be willing to help by a reduction of our rates, and we can only trust that by these combined efforts the business of Vera Cruz may be put on a sound and lasting basis. It is true that the competition of the Central Railway is not the only source of competition which we may some day have to face. If the National line was completed it would have a line from the sea to the capital much shorter than that of the present Central Railway. Again, if the Tampico line were completed, the Central, to which it belongs, would have a much shorter line than the National line has now, but it is most difficult to understand how, with the present trade of Mexico, all these competing lines could possibly live. To make them pay, there must be a large increase in the trade of Mexico, and in that case the port of Vera Cruz would be in possession of a trade much larger than that of Mexico is now.

At this meeting, also, Mr. Wm. Abbott, a prominent London broker, who was active in "booming" Mexican Railway shares a few years ago, said on this subject:

With regard to the other competition, the Mexican Central and the National, all the capitalists of this country have to do is to refuse to accept the securities here. The people in Boston who made that Central line and are interested in the National are staggering under the stock and, of course, are doing their utmost to make it appear that a large amount of freight has been carried over that line and to make English capitalists suppose that that traffic is carried at a profit. It is carried at an absolute loss—(hear, hear)—and how long, as the Chairman pointed out, that absolute loss in working expenses is to go on without the line coming to grief, is a question of very small calculation. The National line to which the last speaker referred is not, I think, likely to be a very serious competitor to us. The credit of the company is not sufficient to attract to it sufficient capital to complete that line, and if you remember, our late Chairman, Mr. Crawford, spoke of the magnificent schemes which were in contemplation with regard to the harbor of Tampico, and that when completed a very serious competition might be expected. But they are not completed, and as I pointed out at the time, if they have not money to complete the railway, they certainly cannot go in for experimental works in building harbors and rendering the trade of the seaport at all effective. So I think the dismal prospect held out by the last speaker need not have the slightest effect upon your minds.

New 30-Inch Drill Press.

The tool illustrated herewith, manufactured by Messrs. Gould & Eberhardt, of Newark, N. J., is designed to embody a few more steps in the process of making machines do everything but think, and more or less of that. The special features claimed as new in it are:

1. A speed-index to the cone, as shown in the engraving showing the proper speed to use in ordinary work for each size of drill.

2. A similar speed-index to the feeding-device, not so distinctly shown, indicating at once the proper feed to use in ordinary work.

3. An automatic feed either up or down, entirely independent of the drill spindle or cone shaft, so that changing one does not affect the other. The manner of doing this is claimed to be especially new and good.

4. Arranging the back gears so that a single movement simultaneously releases the cone and engages the gearing.

Other minor features on which less stress is laid but which are still deemed useful improvements are:

5. Constructing the barrel wherein the spindle revolves square and long, using the four sides of the barrel for rigidity, and allowing sufficient space each side of the rack.

6. Providing the end of the spindle which holds the drill with a hardened steel sliding plug, having a concave slot milled in it, which serves to carry the drill, and also to force it out of the spindle when struck with a hammer or mallet.

7. The T-slots in the table are of such a size as to admit, any standard square-headed bolt with no occasion for having special ones forged.

The manner of obtaining the independent automatic feed, by a friction disk against which a vertically adjustable friction wheel bears, is very clear from the engraving as also the square spindle barrel, sliding plug and other features mentioned.

Fluctuations of Rainfall and Floods.

It is often a matter of serious moment to engineers and railroad men to form some idea as to whether there is any approach to a law underlying the seemingly lawless occurrence of floods. That there should be something of the kind is intrinsically reasonable, and a recent paper of Mr. Desmond Fitzgerald, C. E., before the American Society of Civil Engineers, on the rainfall for the past 32 years at Lake Cochituate, which supplies Boston with water, seems to afford some evidence that there is such a law, and even enables us to get some idea of what it may be.

We reproduce from the diagram fig. 1 herewith, showing the average total rainfall per year for 32 years. It is at once clear that an average line may be sketched having its lowest point about 1855, its highest point about 1868, and its lowest point again about the present time. This corresponds with observations extending over longer periods at other points,

which always show the same fluctuations, although the observations have nowhere been carried on over a sufficient period of time to determine the precise law of secular variation, or even if there be any law to the undoubted fact that secular fluctuations do occur. This much, however, is clear, that

similar, and much stronger, evidence that there is some approach to a definite law in the irregular distribution of rainfall between the various months of the year. August, November, March and May seem to be the months of heavy rainfall in all years and in all localities in New England. In New York the general law is the same, but the excess of August and May over the other months is more decided. The interesting and quite full data establishing the persistency of these general tendencies at all times and places we cannot attempt to give. The general law for the whole Atlantic seaboard is much the same.

Engine Whistle for Passenger Service.

The accompanying engraving is republished from the *Railroad Gazette* of June 5, where detail drawings and a description were given of the "Single-Bell Chime Whistles" in use on the passenger locomotives of the Chesapeake & Ohio Railway, by means of which passenger trains are easily distinguished from freight by the sound of the whistle when the train is out of sight. These chime whistles are manufactured by the Crosby Steam Gage & Valve Co., of Boston, who are sole owners of the patent, and this republication is made in order to correct an erroneous statement made last week on information derived from the railroad company which furnished the drawings.

As is seen from the engravings, the bell of the whistle is divided vertically into three compartments by radial partitions. Each compartment is of a different height and consequently gives a different note. The theory of the whistle is that these different notes will blend in one harmonious whole, so that a passenger train may be easily distinguished from a freight by the sound of the whistle when the train itself is out of sight, and some distance off.

This whistle appears to be a considerable improvement on the ordinary style, and the fact that the approach of a passenger train can be distinguished from that of a freight is very convenient to passengers waiting at stations. We understand that the whistles are in use on other roads, and that they are so much liked wherever they have been introduced, that their use is rapidly extending.

TECHNICAL.

Locomotive Building.

The Raleigh & Gaston shops in Raleigh, N. C., have recently completed a new passenger engine for the road.

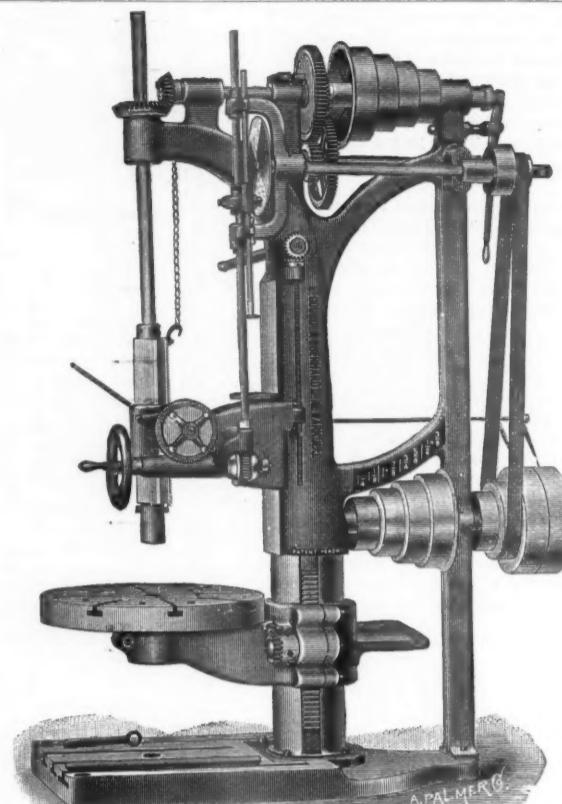
The Rhode Island Locomotive Works, in Providence, have just completed an order for 30 locomotives for the Brooklyn Elevated road. They are now building 10 heavy ten-wheel engines for the Chicago, Milwaukee & St. Paul, and 8 passenger engines for the Chicago, St. Louis & Western road.

The Chicago, Rock Island & Pacific shops, in Chicago, have just completed a heavy passenger engine for the use of the road.

The Car Shops.

At the annual meeting of the stockholders of the Rochester Car Wheel Works in Rochester, N. Y., June 4, it was resolved to increase the capital stock of the company from \$60,000 to \$100,000. The company has recently purchased 13 acres of land adjoining the New York Central tracks in East Rochester, and plans have been adopted for a new foundry building to be erected there immediately. The new building will be extensive, in order to provide for the increasing business of the company. The following are the officers of the company for the ensuing year: President, William H. Barnum; Vice-President, William K. Chapin; Secretary and Treasurer, Charles T. Chapin. These officers, with Milo B. Richardson and Charles W. Barnum, constitute the board of directors.

The Jones Car Works in Schenectady, N. Y., have been leased to the New York Central Sleeping Car Co. for one year, with the privilege of purchase at the end of the lease.



NEW 30-INCH DRILL PRESS.

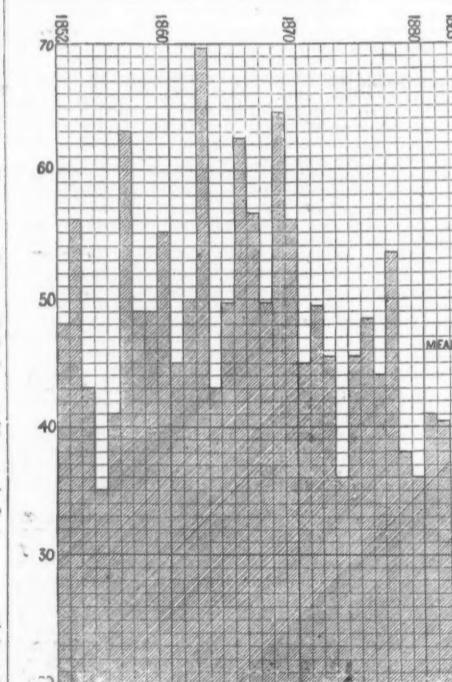


Fig. 1.
Total Annual Rainfall in Inches at Lake Cochituate, Mass.
For each year from 1852 to 1883.

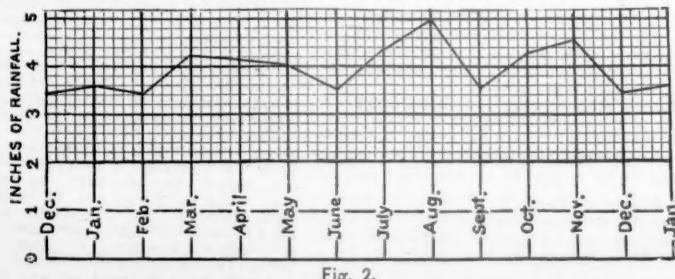
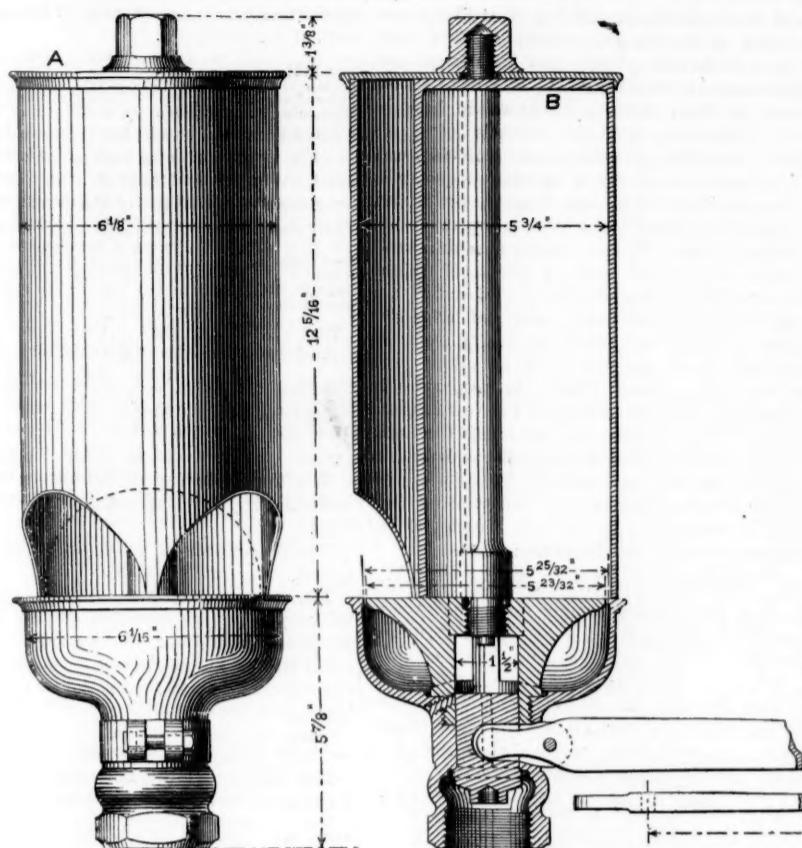


Fig. 2.
Total Monthly Rainfall in Inches at Lake Cochituate, Mass.
Average of the 32 years, 1852-83.



SINGLE-BELL CHIME LOCOMOTIVE WHISTLE.

The Sleeping Car Co. intends to use these works for all the repairs required to its cars and also for the construction of new cars, and the work now done in the Buffalo repair shops will be transferred to Schenectady at once. The New York Central Sleeping Car Co. has also leased the buildings erected some two years ago for the McQueen Locomotive Works, which have never been stocked with machinery. These buildings, which adjoin the car works, are extensive and can easily be arranged for the company's purposes.

The Cumberland Valley shops in Chambersburg, Pa., are building five passenger cars for the road, the first of them having just been completed. These are the first new passenger cars ever built in these shops.

The car works at York, Pa., have changed hands, the new proprietors, Messrs. Gottwalt & Berry, having formerly been foremen in the shops. The works have started up with a number of orders on hand.

The LaFayette Car Works at LaFayette, Ind., have shut down for the present, but it is expected that the stoppage will only be temporary.

The Laconia Car Co., in Laconia, N. H., is building four combination baggage and smoking cars for the Boston, Revere Beach & Lynn road.

Iron and Steel.

The Cherokee Iron Co. at Cedartown, Ga., has completed the rebuilding of its blast furnaces. The stack has been enlarged and relined, and new engine and blowing machinery put in, and other improvements made. The furnace will go into blast very shortly, and will hereafter use coke instead of charcoal for fuel.

Merion furnace, at Conshohocken, Pa., which has just been undergoing repairs, will go into blast in a few days.

The Allentown Furnace Co. is to be incorporated, to take and operate 5 blast furnaces of the Allentown Iron Co., at Allentown, Pa.

The second furnace of the Franklin Iron Manufacturing Co. at Clinton, N. Y., went into blast June 6.

The Western Forge & Rolling Mill Co. is building new mills in East St. Louis, Ill., and expects to make bridge iron work and iron and steel forging and railroad supplies.

The Pittsburgh strike continues without any very important change, although several mills have signed the schedule, and there are some indications of weakening on the part of the manufacturers.

Manufacturing and Business.

The Patent Metallic Weather Strip Co., maker of Browne's metallic and rubber weather strips, has moved its office and warerooms from No. 924 Broadway, New York, to more commodious quarters in Booth's Theatre building, corner of Sixth avenue and Twenty-third street. The increasing demand has obliged the company to secure more room. Besides the original single-edge or flat strip—which is still considered best for railroad purposes—the company makes the new metal cushion strip.

The Rail Market.

Steel Rails.—The market is quiet and steady with a fair amount of business, although no large orders are reported. Quotations continue at \$27@\$28 per ton at mill for ordinary sections and \$31@\$32 for light rails.

Rail Fastenings.—Quotations continue nominally at 1.80@1.90 cents per lb. for spikes in Pittsburgh; 2.40@2.50 cents for track-bolts, and 1.60@1.70 cents for splice-bars. Demand continues light.

Old Rails.—Old iron rails are somewhat scarce, and are quoted at \$17.50@\$18 per ton at tidewater. Few sales are reported, as buyers seem unwilling to give over \$17. Old steel rails are quoted at \$16.50@\$17.50 per ton in Pittsburgh.

American Society of Civil Engineers.

A regular meeting was held at the rooms in New York, May 20, Mr. Joseph P. Davis in the chair.

The paper by C. C. Schneider, on the Cantilever Bridge at Niagara Falls, was discussed by Messrs. Christie, T. C. Clarke, Cooper, Gayler, Goodridge, Hawks, Macdonald, Marshall, Morison, Frederick H. Smith, Henry W. Wilson, Joseph M. Wilson and Schneider.

The discussion on this paper will be continued at the approaching convention of the Society at Deer Park, Maryland,

a number of members of the Society having signified their intention to present discussions at that time, and therefore an abstract will not be issued until the discussion is completed.

The paper by George H. Pegram, Formulas for the Weights of Iron and Steel Railway Bridges under Standard Specifications, was discussed by Messrs. Becker, Hughes, Hutchinson, Cooper, Macdonald, Whittemore, Joseph M. Wilson and Pegram.

It is probable that additional discussion upon Mr. Pegram's paper will be offered at the approaching convention. An abstract of the paper would hardly convey sufficient information, and therefore has not been presented, but an advance copy of the paper will be sent directly to any person signifying to the Secretary his intention to discuss it.

At the meeting on June 3, President Graff in the chair, the death, on May 30, of Mr. M. T. Seymour, F. Am. Soc. C. E., was announced.

The paper by Eliot C. Clarke, Records of Tests of Cement made for the Boston Drainage Works, 1878-1884, was read and discussed. This paper is included in the *Transactions* already issued. The discussion will be continued at the convention.

Engineers' Club of St. Louis.

Club met in St. Louis, May 27, President Moore in the chair; 16 members and 7 visitors present. Jos. T. Monell was elected a member.

A motion to hold a meeting of the Club Wednesday, June 10, was carried.

Wm. H. Bryan read a paper on Long and Short-Stroke Engines, in reply to a recent publication. The relative value of these two types of engine is now being widely discussed.

While the long-stroke engine has done much for the advancement of steam engineering, and has heretofore been considered the ideal, he argued that it must now share the honors with the short-stroke engine, on account of less first cost, interest and depreciation; less space occupied; greater regularity of speed; less friction and liability to breakage; and at least equal fuel economy. Mr. Bryan claimed the total economic advantages are on the side of the short-stroke engine.

The Reynolds-Corliss was taken as the type of the long-stroke engine and the Armstrong & Sims engine as the type of short stroke.

The paper was discussed by Messrs. Baker, Alderdice and others.

Mr. W. H. Alderdice read a paper on The Use of Diagrams in Designing Compound Engines. The paper gave very complete mathematical discussion of the subject with blackboard illustrations. It was discussed by Messrs. Johnson, Baker, Moore and others.

Capt. J. H. Willard of the Mississippi River Commission, was present, and gave some interesting facts concerning compound engines on Western river steamboats. Adjourned.

Awards at the New Orleans Exhibition.

The Ingersoll Rock Drill Co., of New York, made a fine exhibit of its rock drills, air compressors and other mining machinery at New Orleans. The exhibit received the highest honors in its department, having been awarded three first prizes; being gold medals for rock drills, the best air compressor, and the best general display in this department.

Prizes Offered.

The German Society of Mechanical Engineers offers a prize of 1,000 marks (\$243) for the best plan for a boiler shop in which 16 locomotive boilers could be built at once, and a prize of 300 marks (\$73) for a treatise on the best method of fastening tires to the wheels of railroad rolling stock.

A New Block Signal.

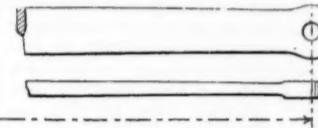
We had the pleasure Sunday of examining an entirely new block railroad signal, the invention of our ingenious townsmen, Engineer William Heidenthal. He has occupied the spare minutes of an entire year in perfecting the signal, and it is now placed in position in the yard in this village, just above the Germantown crossing. The invention has not been patented, and we are therefore not at liberty to describe its workings in detail. Suffice it to state that it works to perfection, and every railroad man who has inspected it states that it is the most perfect railroad signal ever invented. The signal works on the principle of gravitation, and does not require any attendance whatever. A piece of iron about 2 in. square is located outside the rail, and when a train passes over it the

danger signal is at once displayed. This signal can be so arranged that it will show "danger" for any required length of time, all the way from 1 to 20 minutes, at the lapse of the time for which it is set changing back to the safe signal. The signal cannot be tampered with by an employee, for if it is touched at all it will show the danger signal. Another admirable point about it is an attachment for the benefit of careless flagmen. The signal shows a letter on a disk in front of the signal, and as the letter can be changed at will, a flagman who is sent back to flag his train must obtain the letter, otherwise it is proof positive that he has not performed his duty.

The signal has been in operation in the yard here for three weeks, and has given the best satisfaction. When we state that it is operated by means of a small tin tank filled with alcohol, it will be all the more amazing to railroad men who have not had an opportunity to see its workings. We understand that the Erie officials have made a thorough test and inspection of the new signal.—*Port Jervis (N. Y.) Gazette*, June 8.

The Fast "Limited" Trains.

The *Official Guide* for June says: "We noted in our last issue the time between New York and Chicago, made by the Limited Express of the Pennsylvania Railroad, as being the shortest we had ever recorded between those cities. The same time is now made by the Special South Shore Express, running over the New York Central & Hudson River and the Lake Shore & Michigan Southern railroads. For the purpose of comparison, we publish herewith schedules of both trains, naming only the points at which stops are made, with the exception of South Chicago. The fast run of both trains practically ends at South Chicago. The longest run made without stopping is between Albany and Syracuse, 147.5 miles. Eleven intermediate stops (counting Jersey City) are made by the Limited, and eight by the Special. The fastest average time between stops is made by the Limited, between Jersey City and Philadelphia, the speed being 45.5 miles per hour, and by the Special, between Syracuse and Rochester, the speed being 42.6 miles per hour. The average running time between the Grand Central Depot and South Chicago is 39.34 miles per hour, and between Jersey City and South Chicago 37.33 miles per hour. The recorded time lost by



stops by the Special sums up 55 minutes; by the Limited, 47 minutes, no allowance being made for the stops at Allegheny and Archer avenue.

"For other comparisons we refer to the schedules as printed."

SPECIAL SOUTH SHORE EXPRESS VIA NEW YORK CENTRAL & HUDSON RIVER AND LAKE SHORE & MICHIGAN SOUTHERN RAILROADS.

STATIONS.	Total distance.	Miles between stations.	Schedule.	Running time.	Time lost at stations.
Leave New York...	0		9:50 a. m.		
Arrive Albany...	142	142.0	1:10 p. m.	3 h. 20 m.	5 min.
Leave Albany...	142		1:15 "		
Arrive Syracuse...	280.5	147.5	4:50 "	3 h. 35 m.	5 min.
Leave Syracuse...	280.5		4:55 "		
Arrive Rochester...	370.3	80.8	6:45 "	1 h. 50 m.	5 min.
Leave Rochester...	370.3		6:50 "		
Arrive Buffalo...	433.3	69.0	8:35 "	1 h. 45 m.	
<i>By Central Time</i>					
Leave Buffalo...	430.3		7:35 "		10 min.
Arrive Erie...	577.3	88.0	7:45 "	2 h. 10 m.	5 min.
Leave Erie...	577.3		9:55 "		
Arrive Cleveland...	622.3	95.0	10:00 "		
Leave Cleveland...	622.3		12:25 "		10 min.
Arrive Toledo...	735.8	113.5	3:30 "	2 h. 55 m.	10 min.
Leave Toledo...	735.8		3:49 "		
Arrive Elkhart...	869.2	133.4	6:50 "	3 h. 20 m.	5 min.
Leave Elkhart...	869.2		6:55 "		
Arrive So. Chicago...	958.3	89.1	9:12 "	2 h. 17 m.	
Arrive Chicago...	970.4	12.1	9:50 "	38 m.	
Total....	970.4	25 hours.	24 h. 05 m.		55 min.

* Time of arrival at Rochester is assumed. Leaving time only is given on working table.

PENNSYLVANIA RAILROAD CHICAGO LIMITED EXPRESS.

STATIONS.	Total distance.	Miles between stations.	Schedule.	Running time.	Time lost at stations.
Leave New York...	0.0		9:00 a. m.		
Leave Jersey City...	1.0	1.0	9:15 "		15 m.
Arrive Philadelphia...	90.6	89.6	11:13 "	1 h. 58 m.	7 min.
Leave Philadelphia...	90.6		11:20 "		
Arrive Harrisburg...	193.8	105.2	1:55 p. m.	2 h. 35 m.	5 min.
Leave Harrisburg...	193.8		2:00 "		
Arrive Altoona...	327.4	131.6	5:15 "	3 h. 15 m.	5 min.
Leave Altoona...	327.4		5:20 "		
Arrive Pittsburgh...	444.1	116.7	8:30 "	3 h. 10 m.	15 min.
<i>By Central Time</i>					
Leave Pittsburgh...	444.1		7:30 "		
Leave Allegheny...	445.1	1.0	7:45 "		10 m.
Arrive Alliance...	327.3	82.2	10:20 "	2 h. 25 m.	5 min.
Leave Alliance...	327.3		10:25 "		
Arrive Crestline...	632.9	105.6	1:25 a. m.	3 h. 00 m.	5 min.
Leave Crestline...	632.9		1:30 "		
Arrive Fort Wayne...	764.1	131.2	4:45 "	3 h. 15 m.	5 min.
Leave Fort Wayne...	764.1		4:50 "		
Arrive So. Chicago...	910.3	135.6	8:20 "	3 h. 30 m.	
Arrive Archer av...	910.3	10.6	8:50 "	30 m.	
Arrive Chicago...	912.4	2.1	9:00 "	10 m.	
Total....	912.4	25 hours.	24 h. 13 m.		47 min.

Steam Street Railroads.

The London *Engineering* says: "Steam tramways are taking preference among the public over those worked by horses. The two tramways between the Hague and Scheveningen—a fashionable seaside resort some three miles from the former place—run almost side by side, the one being a horse tram and the other worked by steam. On Whit-Monday the traffic was very great on the steam line, each tram carrying from 100 to 120 passengers, whereas the horse cars were barely filled, frequently having no more than three to six passengers per journey. A similar preference was shown on the North London tramways, and it is one that continues to exist. Both these tramways are worked by the Merryweather locomotive, having 7 by 11 in. steam cylinders and weighing 9 tons."



Published Every Friday.

EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to all departments of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns our own opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

TRUNK LINE TRAFFIC STATISTICS.

Mr. Fink's office is a great storehouse of statistics of traffic movements, much of which is not only useful to the railroads in their efforts to co-operate, but afford perhaps the best criterion of the general course of trade in this country that is anywhere attainable. Some of these statistics, particularly those showing the shipments of freight from Chicago, we have been accustomed to publish monthly. In 1882 Mr. Fink had printed for the information of the Advisory Commission two tables, one showing the total tonnage in 1880 of *east-bound* freight passing over the trunk lines from their western termini or points further west, with the quantity billed from each of 33 different competing points, and the quantity from each state; and the other showing the *west-bound* freight shipped in the same year from New York, Boston and New England points, Philadelphia and Baltimore, to the western termini of the trunk lines and points further west, giving the tons shipped to each western place and state. These tables we commented on March 17, 1882, page 167 ("Origin and Destination of Trunk Line Freight"), and illustrated graphically April 7, 1882, page 208 ("Western Traffic Centres"). Last year Mr. C. W. Bullen, Secretary of the Joint Executive Committee, continued and greatly expanded and improved these statistics, and added to them others of very great value, in a most convenient pamphlet, published for the use of the railroads in the Joint Executive Committee. We have added some of the statistics for 1884, and we are now able to present some of these figures.

The following figures show the *east-bound* movement from the western termini of the eastern trunk lines, destined to New York, Boston and 11 New England points included with it, Philadelphia and Baltimore, of all freight except live stock and dressed beef, the New York Central, the Erie, the Pennsylvania and the Baltimore & Ohio reporting for 1880 and 1881, and the Grand Trunk also in the last three years, but the Lackawanna and the West Shore in no year. This *east-bound* movement has been, in tons :

1880.	1881.	1882.	1883.	1884.
7,484,286	8,258,834	5,487,677	5,400,211	4,680,580

Thus we see that this *east-bound* movement to the seaboard decreased largely after 1881, though the movement by the Grand Trunk was first included there. In 1882 the movement was 33½ per cent. less, and in 1883 34½ per cent. less than in 1881—truly an enormous reduction. This is the largest traffic movement in the country, and changes in it have a great significance. The great reduction indicated that the country had a much smaller surplus of productions for export than before. In 1884, how-

ever, both the Lackawanna and the West Shore were carrying part of this freight, chiefly to New York, but to a considerable extent also to Boston, and their shipments are not reported. We have shown heretofore, however, that the Lackawanna brought to New York city 4,581,770 bushels of grain and flour in 1883 (probably about 115,000 tons), and the Lackawanna and the West Shore together in 1884 brought about 12,400,000 bushels, or 310,000 tons. This was probably by far the larger part of their total through freight to the seaboard, as flour and grain made up 68 per cent. of the total freight brought to the four seaboard cities in 1883 and 67½ per cent. in 1884; and provisions, and still more the higher-class freights, are harder to divert from the old lines than grain and flour. If we allow these roads to have carried other freight in proportion to the average, and as large a share of the New England as of the New York receipts, we must credit the Lackawanna with carrying 227,000 tons to the seaboard in 1883, and the two new roads with 612,000 tons in 1884. This doubtless is an exaggeration, but accepting it we shall have as the trunk line through freight to the four seaboard cities for the five years :

1880.	1881.	1882.	1883.	1884.
7,484,286	8,258,834	5,487,677	5,637,211	5,292,580

Thus, with this liberal allowance for the new roads, and none for the Grand Trunk deliveries at Boston in 1880 and 1881, we find an enormous decrease since 1881. What the freights were which fell off so greatly after 1881 is indicated by the following statement of the tons of seventh and eighth class freight forwarded in each year, the seventh class including provisions, and the eighth flour and grain :

1880.	1881.	1882.	1883.	1884.	
314,318	865,522	676,791	731,929	570,857	
P. c. of total	12.2	10.5	12.3	13.5	
Eighth class	5,455,544	5,582,548	3,579,65	3,674,900	3,163,458
P. c. of total	72.9	67.7	65.2	68.0	
All other	1,114,384	1,800,764	1,231,331	983,382	940,265
P. c. of total	14.9	21.8	22.5	18.5	

Thus, of the total decrease of 2,855,623 tons from 1881 to 1882, brought by the five old trunk lines, 2,051,241 tons (70 per cent.) was in the two great staples, grain and provisions, and 1,917,648 tons (67 per cent.) was flour and grain; and of this latter decrease only about 410,000 tons was diverted to the two new roads.

The statistics of the live stock and dressed beef movement are less complete. No live stock but hogs is given in the arrivals at New York, Philadelphia and Baltimore in 1882 till April 17, and no dressed beef till November, and none of this freight is given for Boston in 1880 until after Sept. 12. As reported we give them, however, in tons :

1880.	1881.	1882.	1883.	1884.
Cattle	573,082	623,957	538,919	591,701
Other live stock	252,917	286,576	371,482	458,931
Dressed beef	8,364	29,718	33,700	72,835

Total ... 834,363 940,251 944,171,112,3467,1,204,927

Thus this traffic, allowing for omissions in 1880 and 1882, has increased. A very large part of the increase in the last three years was sheep, which previously had made an insignificant figure. The new roads have not carried a great deal of live stock, but they have had some, and some dressed beef. The distribution of the freight shipments (other than live stock) among the several seaboard cities has been :

Tons:	New York.	Boston.	Phila.	Baltimore.	Total.
1880.	3,682,101	888,296	1,425,473	1,488,376	7,484,246
1881.	3,673,608	1,822,960	1,374,829	1,187,437	8,258,834
1882.	2,968,119	959,716	886,185	673,657	5,487,677
1883.	2,773,252	966,108	921,863	738,988	5,400,211
1884.	2,320,710	810,708	816,793	732,369	4,680,580

Per cent. : 49.2 11.0 19.0 10.0 100.0

1881. 46.9 22.1 16.6 14.4 100.0

1882. 54.1 17.5 16.1 12.3 100.0

1883. 51.3 17.9 17.1 13.7 100.0

1884. 49.6 17.3 17.5 15.6 100.0

The apparent decrease in the share of New York is due to the non-inclusion of what the new roads brought. Our estimate of it would make the total receipts of the four cities in the last two years.

Tons:	New York.	Boston.	Phila.	Baltimore.	Total.
1883.	2,942,252	1,024,408	921,683	738,988	5,627,511
1884.	2,780,710	962,708	816,793	732,369	5,292,580

Per cent.: 52.3 18.2 16.4 13.1 100.0

1883. 52.5 18.2 15.4 13.9 100.0

1884. 52.5 18.2 15.4 13.9 100.0

Thus, allowing for the new roads, it seems that the places to which they carry have a little larger share, but only a little larger, than before they were opened. New York and Boston together have had the following percentages of the total rail shipments to the four ports, taking the last figures as correct:

1880.	1881.	1882.	1883.	1884.
61.1	69.0	71.6	72.5	70.7

But as the Grand Trunk was omitted in the first two years, it is doubtful if these have as large a share as in 1881. The statement of the receipts by classes enables us to see what trades afford traffic to the several cities, though the inclusion of flour with grain prevents our tracing here the remarkable difference between the markets for the two, Philadelphia and especially Baltimore receiving a very much smaller proportion of flour than of grain. Eighth class (flour and grain)

made the following percentage of the total receipts of each of the four ports:

	1880.	1881.	1882.	1883.	1884.
New York	65.5	66.4	64.2	65.1	63.4
Boston	67.2	63.6	63.4	70.0	69.6
Philadelphia	78.4	46.7	61.1	65.0	66.2
Baltimore	89.5	81.6	77.8	80.3	81.2

Since the grain export trade has fallen off at Philadelphia, its proportion of receipts of this class has been greatly reduced, and now it, New York and Boston have nearly equal shares of the more valuable freights. Their shares of the total provision receipts have been :

	1880.	1881.	1882.	1883.	1884.
New York	66.8	61.6	61.1	61.7	60.4
Boston	12.2	14.7	13.1	12.9	13.6
Philadelphia	13.1	15.1	17.8	18.4	17.8
Baltimore	7.9	8.6	8.0	7.0	8.2

Total 100.0 100.0 100.0 100.0 100.0

And the proportion of the total of flour and grain:

	1880.	1881.	1882.	1883.	1884.
New York	44.2	46.0	53.2	49.1	46.5
Boston	10.9	20.7	17.0	18.4	17.6
Philadelphia	20.5	15.9	15.1	16.3	17.1
Baltimore	24.4	17.4	14.7	16.2	18.8

Total 100.0 100.0 100.0 100.0 100.0

New York's share of the provisions has been smaller and Philadelphia's larger of late years than in 1880 and 1881.

The proportions of grain and flour receipts have varied comparatively little.

The movement to the seaboard cities, of course, varies greatly with the exportations. The total movement eastward from the western termini of the trunk lines, which includes the supplies for the Eastern states and much for the South and the Dominion, has been in tons :

1880.	1881.	1882.	1883.	1884.
10,544,308	10,567,928	9,712,912	10,065,633	8,906,388

This shows that the movement *exclusive of that to the four seaboard cities* has been :

1880.	1881.	1882.	1883.	1884.
3,060,062	2,300,094	4,225,235	4,065,422	4,225,088

Thus these shipments, which were exclusively for home consumption, have not decreased like those to the seaboard cities, but have very greatly

nearly 10 per cent. from 1883, making nearly the same as in 1880.

The changes at the different ports have not been very great. New York had 58½ per cent. of the small shipments of 1878, 58½ of the large ones of 1881, and 60 per cent. of the enormous ones of 1882, and there is little change since.

Boston has gained decidedly of late years, but its shipments by the Grand Trunk were not reported in the last half of 1881 and the first half of 1882. Philadelphia and Baltimore have not gained as rapidly as New York and Boston. These latter together have had the following percentages of the whole in successive years :

1878.	1879.	1880.	1881.	1882.	1883.	1884.
74.5	70.8	71.8	76.6	78.8	78.8	78.4

The large increase of the traffic following the great reductions in rates made in August, 1881, and again in January, 1882, were chiefly of low-class freight, but this is but roughly indicated by the statistics, which cover entire years, during only one-half of which did the very low rates prevail. But we have the figures for each half of the years when traffic was growing fastest, not including those by indirect rail routes, as follows:

	1880.	1881.	1882.
Jan. 1 to June 30.....	928,866	900,708	1,284,738
July 1 to Dec. 31.....	900,546	1,170,669	993,347

If we exclude the two half-years of railroad war, we find that the movement in the other four half-years varied but little. In the first half of 1881 it was 2 per cent. less than in the corresponding half of 1880; but in the second half, with war rates, the shipments were 30 per cent. greater than in the corresponding half of 1880. In the first half of 1882, when rates were much lower even than in the last half of 1881, the shipments were 43 per cent. more than in the corresponding half of the previous year; in the last half of 1882, when the rates had been restored half-way for four months and fully for two months, the shipments were 10 per cent. more than in the corresponding half of 1880, when rates were maintained, but 15 per cent. less than in 1881, when they were not. But for the railroad war it appears that throughout these three years the through shipments westward would have remained very steadily at a little more than 900,000 tons in every half year.

On the whole, these statistics show a rapid growth of the trunk-line through shipments westward from 1878 to 1882, followed, just as the two new trunk lines were opened, by a rapid fall, leaving for seven roads in 1884 just what five roads had to carry in 1880. The total east-bound movement (to interior as well as seaboard points) has been reported for only five years, and less completely, and it has varied comparatively little in that time, if we allow for the unreported traffic of the new lines, but was probably somewhat less last year than in any other, except perhaps 1882.

BAD WHEELS AND BAD WHEEL-MAKERS.

II.

We give this week the summary of the table (printed last week) giving the actual records of 24 different wheel-makers, which summary was by accident omitted. This summary gives in many ways the fairest and most satisfactory basis of comparison, since it eliminates more or less individual eccentricities, and as the contrasts are still striking enough, it will be mainly referred to, although the contrasts between the individual extremes are still more striking. The summary also gives the percentage of each cause of removal on the whole number in service as well as on the number removed, which the main table does not give, although it gives data by which it may be determined.

The most important question, perhaps, about a wheel is its liability to fracture in service. Of the wheels "cracked and broken," it will be seen that ten times as many wheels break and fifteen times as many wheels crack, out of a given number in service, when made by an average bad maker, as when made by an average good maker. Over a quarter of "No. 15's" productions crack or break in one year, and a sixth or a seventh of those by several other makers, whereas less than three in a thousand failed of the best three makers, and only six in a thousand of the six best makers.

The localities of the fractures in cracked and broken wheels are not given in detail in any of the main statement, as they appeared of far less interest and significance than the other facts presented, and would needlessly confuse it. The following table, however, presents the details as respects the totals of each of three classes of manufacturers; and it will be observed from the summary that only about one-quarter of all the fractures are in the flange or tread, the remainder

being in the plate, hub or ribs. There is, however, a larger proportion of the good wheels which break in the tread, and a smaller proportion which break in the centre of the wheel, the difference lying almost wholly in the number which crack in plate or hub. Nearly two-thirds of the fractures in all wheels appear to arise from the bursting strains produced by forcing the wheels upon the axle.

Percentage of Fractures in Different parts of Wheel.

	Makers.			
	Six best.	Six next best.	Twelve worst.	Average.
Cracked:				
Plate.....	56.0	65.4	67.1	62.6
Hub.....	2.7	6.6	2.3	2.9
Flange.....	1.0	2.7	0.7	1.5
Tread.....	23.1	11.1	7.7	14.4
Ribs.....	2.0	8.9	11.7	7.5
Total cracked.....	85.7	91.7	89.5	88.9
Broken:				
Tread.....	9.3	4.2	8.7	7.3
Flange.....	4.6	3.7	1.6	3.4
Hub.....	0.4	0.4	0.2	0.4
Total broken.....	14.3	8.3	10.5	11.1
Total cracked and broken.....	100.0	100.0	100.0	100.0
SUMMARY:				
Flange and tread.....	38.0	21.7	18.7	26.6
Plate, hub and ribs.....	62.0	78.3	81.3	73.4
Total.....	100.0	100.0	100.0	100.0

A strong side light is also thrown by the main statement upon the question of sharp flanges and the causes thereof. Whatever may be the chief cause of that phenomenon, we have evidence here which, as regards this particular 300,000 wheels, may be called decisive; that one important cause was intimately connected with the quality of the wheel itself. For these particular wheels all suffered alike from the evil effects of the same sharp cornered pattern of rail, and were, as nearly as may be, equally exposed to all other possible and impossible causes of sharp flanges *except* differences in their own quality; yet we find that out of one hundred wheels removed there were over *four and a half times* as many sharp flanges among the poor wheels as among the good ones; and out of a thousand wheels in service there were *twenty-one times* as many wheels removed for sharp flanges among the bad makers as among the good ones.

This will bear summarizing more fully, in a little different form:

"Out of 1,000 wheels removed there were :

In 1,000 wheels made by the	Six best makers, 27 sharp flanges.
	Six next best makers, 82 sharp flanges (3 times as many).
	Twelve worst makers, 124 sharp flanges (4.6 times as many).

Out of 10,000 wheels in service there were removed for sharp flanges :

In 10,000 wheels made by the	Six best makers, 12 wheels.
	Six next best makers, 80 wheels (7.4 times as many).
	Twelve worst makers, 250 wheels (20.8 times as many).

This leads to the striking conclusion, to the extent that one year's removals from 300,000 wheels by 24 different makers can give trustworthy evidence, that the same differences of quality have nearly twice as great effect upon the number of sharp flanges as upon the number cracked and broken, as thus:

Relative Increase in Number of Wheels Cracked and Broken and in Number of Sharp Flanges, caused by difference of quality.

Comparison by percentages of wheels removed.

	Broken	Cracke ^d	Sharp flanges.
Six best makers	Standard of comparison.	1.00	1.00
Six next best makers.		1.10	1.80
Twelve worst	"	2.20	2.80

Comparison by percentages of wheels in service.

	Broken	Cracke ^d	Sharp flanges.
Six best makers	Standard of comparison.	1.00	1.00
Six next best makers.		2.56	4.50
Twelve worst	"	6.78	13.28

[The comparison is made by dividing each percentage of removals given in the summary below the main statement by the percentage of the six best makers standing at the head of the column.]

We have seen nothing heretofore affording such positive and direct indications that flange-wear is immensely affected by the quality of the wheel, especially if taken in connection with the individual record. Thus, "No. 16" had fifty-five per cent. of his wheels fail for sharp flanges, the remaining 45 per cent. having all "slid flat;" the wheels, it would seem, being actually not good enough either to break, crack or wear. His immediate neighbors above and below, and likewise Nos. 8 and 11, differ from him only in degree, but do differ considerably. All their wheels were too soft. On the other hand, Nos. 10, 13, 14, 20, 21, 22 have a very small proportion of sharp flanges (for such otherwise bad wheels), and the reason is indicated by the excessive number cracked and broken. Their badness lay in being too hard and brittle.

The comparison of the number of wheels "slid flat" is also interesting. It will be seen that, as one would naturally expect, about the same percentage of all qualities (the very large proportion of one-fifth of the whole removals) are removed as "slid flat," while yet the proportion of the total number in service which are "slid flat" is greatly affected by the quality (although far less than the number of sharp flanges or of cracked and broken). This seems to indicate that

it takes about four times as much sliding to spoil a good wheel as to spoil a poor one, since all wheels, good and bad, are equally exposed to the danger, and are likely to be made to slide an equal number of times. That so large a proportion as one-fifth of the wheels removed should be destroyed in this way seems to indicate that some reform in the brake gear is badly needed, for the distinction between "slid flat" and "worn flat" seems from the internal evidence of the statement to have been in the main carefully and correctly drawn.

The percentage of "worn flat and worn out" is of course the one which chiefly suffers from the undue proportion of new wheels, but consideration will quickly show that if the statement were down to a normal average, so as to show about twice as many renewals per year, the contrast between the *good and bad makers* in number worn out would probably be even more striking than than it is now, which is needless. Already about twice as large a proportion of bad wheels as of good wheels are removed for legitimate wear, in spite of the fact that only *one-quarter* of the bad wheels are now removed for such wear, whereas *six-tenths* of the good wheels are so removed.

The number of "shelled out" wheels will be seen to be very exactly in inverse ratio to the quality, indicating that, like chill-cracking, occasional failures of this kind are rather a good sign than a bad one.

Some of the comparative results which have been summarized show so surprisingly great a contrast between the good and bad qualities that one can hardly help doubting if in part, at least, it may not be exceptional, but we have not at present means for confirming or confuting this suspicion by the comparison which we should otherwise be glad to make of the results with different makers on other roads. A statement of removals otherwise similar to that presented, but giving the mileage of the wheels removed for each class of failure, would have especial interest, although it could hardly prove more fully that not only "the best is the cheapest," but that there is a certain criminal recklessness in the manufacture or purchase of such wheels as those made by the last twelve makers—or rather the last eighteen, for the whole eighteen appear to manufacture wheels so bad that simple preliminary tests would reveal their inferiority. If anything were saved in money, or even if the ultimate loss from the immediate saving were postponed for a number of years, one might regard the purchase of such wheels with more patience; but this is not at all the case, as is clear from the statement. The buyer of such wheels, therefore, if he does not buy them from mere ignorance or thoughtlessness, is, as it were, selling himself to the devil gratis. He is in effect exposing the lives of employés to certain danger, and the company which employs him to certain and speedy loss, in order to tell a lie to the owners of the property about the economy of the management, thus coming very near to committing, if he does not actually commit, what the law describes as an "act evincing a depraved mind, regardless of human life," the penalty for which is a certain number of years in state prison.

STATEMENT

Showing percentages of wheels removed in 1884 for various causes, out of a total of some 300,000 wheels and 18,030 removals; wheels by 24 different makers.

	6 best makers.	6 next best.	12 worst makers.	Avg. of all on road.
P. c. of whole No. in service....	78.2	17.2	4.6	100.0
Broken.....	2.0	2.2	4.4	2.4
Cracked.....	12.2	23.7	37.2	19.4
Broken and cracked.....	14.2	25.9	41.6	21.8
Shelled out.....	0.7	0.1	0.0	0.4
Sharp flange.....	2.7	8.2	12.4	5.8
Slid flat.....	23.3	21.1	20.3	21.7
Worn flat and worn out.....	60.1	44.7	25.7	50.3

Total removal..... 100.0 100.0 100.0 100.0

P. c. of No. in service removed..... 4.39 10.94 20.16 6.21

Percentage of Total Number in Service removed for Each Cause.

	6 best makers.	6 next best.	12 worst.	Total.
P. c. of whole No. in service....	78.2	17.2	4.6	100.0
Broken.....	0.09	0.23	0.88	0.15
Cracked.....	0.54	2.60	7.50	1.20

Broken and cracked..... 0.63 2.83 8.38 1.35

Shelled out..... 0.03 0.01 0.00 0.02

Sharp flange..... 0.12 0.89 2.59 0.36

Slid flat..... 0.98 2.31 4.10 1.35

Worn flat and worn out..... 2.63 4.90 5.18 3.13

Total removed..... 4.39 10.94 20.16 6.21

This statement is a summary of the information contained in the detailed tables published last week, page 361.

Consulting Shareholders.

In another column we publish a letter from Mr. W. L. Martin, an English holder of Central Pacific shares, in which he expresses his indignation because the directors of that company leased its property without consulting their shareholders.

Mr. Martin is evidently not familiar with American railroad corporation practice. Boards of directors here can do pretty much what they please with the properties committed to their charge, without con-

suing their stockholders, the extent of their powers varying with their special charters and the general laws of the states under which they hold. It is outrageous that it should be so, but it is so; and the practice of not consulting stockholders has been so general that many of the most honorably and successfully managed companies make great extensions, purchases and leases, and issue millions of shares and bonds, under the general authority to their directors, without ever asking for a vote of their shareholders. Even when, under the law or the charter, special authorization must be had from the shareholders, they are sometimes asked to give the authority while they are not told what it is proposed to do. This was the case when, near the end of 1882, a contract was made for the union of the Michigan Central and the Canada Southern. The laws of Canada required that such a lease should receive the approval of the shareholders before it could be executed. What the directors did was to ask the stockholders for proxies to vote for "an agreement" with the Michigan Central, but they did not let them know what the agreement was until after they had got the proxies and executed the contract! There was no reason for concealment, that we can see. The Canada Southern directors kept it private from force of habit, apparently, and the shareholders gave them their proxies "unsight, unseen," also from force of habit; for we did not hear that any one objected to the secrecy, or asked to know on what terms his agents proposed to dispose of his property. The fact is, American shareholders seem to feel that they have no rights which their directors are bound to respect. They submit to all sorts of abuses meekly, and though a great many are perfectly conscious that they are abuses, they do not protest to such an extent as to have much effect on the conduct of the companies. What the majority of the holdings want they can of course get, if they insist on it; they do not insist on being consulted when their property is sold, leased or encumbered, and it is, therefore, not easy to believe that they really desire very earnestly to be consulted. It is hard to understand why they do not. Doubtless in many cases the great majority of the shares have been held by the directors themselves, so that what the board agreed to was sure to receive the approval of a share vote. When the shares became more scattered the habit remained. In the case of the Central Pacific, not only were the directors supposed, a few years ago, to own a majority of the shares, but it was supposed that scarcely any shares were owned by any one else. The company was like a firm, the few partners being able to consult each other about everything, and not needing to consult any one else. We agree with Mr. Martin, however, that such measures as the lease of a railroad should always be submitted to the stockholders, be they few or many, and we have no doubt that if shareholders generally desired this, and made their desires known, and growled vigorously when they were not consulted, they would eventually get what they wanted.

As to the Central Pacific's relations with the Union Pacific, it is certainly disadvantageous for the latter that any transcontinental traffic should go by the Southern route, but this probably had little to do with its building the Oregon Short Line, which was begun several years ago, and in fact diverted traffic not from the Central Pacific, but from the Northern Pacific, though it may be used to compete, at a disadvantage, with the Central Pacific. The latter does not charge the Union Pacific local rates, so far as we know, though there is a shrewd suspicion that it does not cultivate the traffic by this route as it might.

As to the terms of the lease of the Central Pacific to the Southern Pacific Company, we do not feel so sure that the rental of \$1,200,000 is "absurdly inadequate." The days when the transcontinental railroads could make great profits is past forever. They will have to take what other companies are willing to charge, or they will be duplicated or triplicated. That fate has already befallen the eastern portion of the old line, and the Northern Pacific has lopped off the traffic of Oregon and Washington from the western line. The Southern Pacific will certainly take part of the traffic, however the Central may be worked. The new roads will generally be satisfied with net earnings which would barely pay the interest charges of the Central Pacific.

The Nickel Plate Bondholders.

The New York, Chicago & St. Louis Railway Company (Nickel Plate), as was expected, failed to pay the interest on its first-mortgage bonds, due the first of this month. In anticipation of this a bondholders' committee had already been formed, and thus early

negotiations have been begun concerning the disposition of the road. The only thing peculiar in the situation is that the majority of the stock is held by the Lake Shore Company, and the second-mortgage bonds probably nearly all by great capitalists, the Vanderbilts; that they desire to continue in control of the road, whether it is profitable or not, to prevent the injury that it might do to their other railroad interests, and that they have great power to make the road valueless if it is worked independently of them. This, however, does not in any way affect the right and power of the bondholders to get the whole value of the property for themselves. When the Lake Shore bought the stock, its officers knew that the stock would be worth nothing, even for purposes of control, if the interest on the bonds was not paid; and the purchasers of the subordinate mortgages also knew that if the road could not pay them and the first-mortgage bondholders too, the latter would be entitled to the property. They took the risks, and the result has been unfavorable to them. The first-mortgage bondholders are entitled to the road if they are not paid. The question with them is, simply, how to get as much as possible out of the road.

This question, however, is not entirely simple. If the property were a house or a farm, the solution would be a simple one. The bondholders could buy in the road at foreclosure sale, and could then get as much out of it as any one else could get. But in this case the bondholders have to consider what they could do with the road if they had it; and it will take but little reflection to convince them that it is not worth so much to them as to the Lake Shore Company; that if they take it they may have to fight for a living with the Lake Shore and the whole Vanderbilt interest, and that while this would be bad for the latter, it would be bad for themselves too. They are entitled to all that it will be possible for them to make out of the railroad, but that is all that they can get, and therefore in negotiating they should limit their demands to this. If they take the road, they will have to secure a terminus at each end, and at the Chicago end at least this will be costly; they will have to spend a great deal of money for the renewal and maintenance of the road, and they will have to compete with one of the best and best established lines in the country for local as well as through traffic.

It has been claimed that under the Vanderbilt management the road has not been permitted to do what it could, lest it should injure the Lake Shore. So far as the local traffic is concerned this is possible; but with regard to through traffic the Nickel Plate has got a larger share of the Chicago shipments, we believe, taking freight and live stock together, than any of the other new roads.

Almost the only chance for the bondholders to get much out of the road if it were thrown into their hands would be to lease or sell it to some company with a line from New York to Buffalo. Of these, however, there is but one that would be at all likely to want the Nickel Plate. The West Shore might want it, but the West Shore's promise to pay would hardly be accepted as a valuable consideration just now. The Erie, threatened with the loss of the Chicago & Atlantic, may be glad to interchange with it, but the Erie is likely to be chary of incurring any additional obligations; there remains the Lackawanna, which still has credit and controls no line west of Buffalo. If it will give a good price for the Nickel Plate, the first-mortgage bondholders will be justified in holding out for as much from any other bidder. But probably the Lackawanna, like other companies, is not sufficiently anxious for a traffic yielding less than half a cent a ton per mile gross, like the through business between Buffalo and Chicago last year, to pay a very large price for a line to do it on, and the privilege of fighting for existence for 500 miles more road than it now has.

The bondholders must accept the road with all its disabilities, including the necessity of fighting for business with powerful competitors at nearly every station. But they are right in insisting on all that it would be possible for them to make out of the road. They owe no one anything in connection with it, and they need not consider the effect on other roads of their taking the line from its present control. It is a fact, however, that the road is worth more to the Vanderbilt interest than to any one else, and they can afford to pay more for it than an independent company can make out of it. How much that may be no one could venture to say, without careful study of the ability of the road to command a profitable local traffic.

A new tariff of west bound rates went into effect—or rather was promulgated—June 1. The rates of the

two previous regular tariffs and of the new one are, New York to Chicago, in cents per 100 lbs.:

	Class.	1.	2.	3.	4.	5.
Nov. 1, 1882.....	75	60	45	35	25	
Jan., 1885	50	40	30	25	18	
June 1, 1885.....	40	30	25	18	15	

The average reduction from the January tariff (taking into account the quantities of different classes shipped) is about 23 per cent., while the January reduction was more than 30 per cent. The reduction from last year's tariff is 46½ per cent. on first-class, 50 per cent. on second-class, 44½ per cent. on third-class, 48½ per cent. on fourth-class, and 40 per cent. on fifth-class and special freight. About one-fourth of the freight is first-class, and nearly one-half is fourth-class. On the trunk line shipments from the seaboard in 1884 the reduction would have made a difference of about \$4,000,000 to the eastern trunk lines, and important shipments from interior points take the same rates.

The New York, West Shore & Buffalo withdraws from the New York west-bound pool, dating from today (June 12). It has long been tacitly agreed that this road should make such rates as it chose in order to secure its traffic, which it could not get at the rates which the old roads charge. It has increased its proportion of the tonnage under this policy, but almost entirely in fourth and fifth-class freight, so that its proportion of the gross earnings has been probably less than in the pool (10 per cent.). There was so much cutting by the old roads of the low regular rates made in January last that a reduction of about one-fifth was made in these, dating from June 1, making the first-class rate 40 cents per 100 lbs. to Chicago. The cause of the original reduction in January was the making of contracts good till July at reduced rates. Recently it appears that contracts have been made till a later date, and generally at a still lower rate. Most of these contracts seem to have been made by the new roads, which find it especially hard to get traffic when rates are so low by the old lines. It is reported that some time contracts have been made by the old roads also, but not so as to prevent a restoration of rates should other circumstances make it possible, of which there is no present prospect, though it may come like a thief in the night (or an angel of healing) at any time. This west-bound traffic was, we believe, the only remaining one in which the contract for a division, according to the apportionment, was executed. Transfers of traffic have not been made for some time, but balances have been paid in money. The withdrawal of the West Shore does not necessarily prevent the other roads pooling their business, but it is not expected that they will do so for the present.

The May grain movement cannot be called heavy, in view of last year's crops. The receipts of the Northwestern markets were about one-fourth greater than last year, and greater than in any May since 1881, but much less than in 1880 or 1881, the bushels of all grains (but not flour) received having been:

1880.	1881.	1882.	1883.	1884.	1885.
24,647,194	17,167,405	18,309,562	16,771,50	12,768,810	10,667,610

The flour receipts were much larger this year than in any other, but not enough so to balance the decrease in grain since 1881 and 1882.

Though the corn crop now coming forward was very much larger than that of any of the three previous years, the May corn receipts were 12 per cent. less than in 1883 and 21½ per cent. less than in 1882.

The shipments of these markets in May make a better showing this year. They have been:

1880.	1881.	1882.	1883.	1884.	1885.
20,931,520	21,519,595	10,292,023	15,910,931	17,059,369	21,077,308

The shipments this year were thus nearly 20 per cent. more than last year, 32 per cent. more than in 1883 and 106 per cent. more than in 1882, but only about the same as in 1881 and 1880 (and also 1879). The increase in flour shipments has been large since the earlier years, however, making the total flour and grain movement somewhat greater this May than in any other. The flour shipments were nearly 9 per cent. more than last year and 47 per cent. more than in 1883, but the increase in wheat shipments since then has been 155 per cent. It is noticeable that 44½ per cent. of the total shipments of this year were made in May, indicating that this grain was held for the opening of navigation much more than has been usual of late years. Last year only 27½ per cent. of the shipments of the five months were made in May, and then the total wheat shipments were larger than this year.

The Atlantic receipts are among the lightest there have been in May for many years. These have been:

Year.	Bushels.	Year.	Bushels.
1876.....	16,173,221	1881.....	20,571,295
1877.....	12,027,057	1882.....	6,963,643
1878.....	25,027,972	1883.....	15,692,744
1879.....	20,920,131	1884.....	10,655,041
1880.....	21,536,737	1885.....	10,639,449

The receipts this year were slightly larger than last year or in 1883, but a third less than in 1883, and only about half as great as in 1881, 1880 and 1879, and still less than in 1878. As in the other cases, there has been an increase in the flour receipts, but not to the same extent, they being 17½ per cent. more than last year, 14 per cent. more than in 1883, and 23 per cent. more than in 1882.

It should be said that the May receipts at Atlantic ports are likely to fluctuate greatly because of the earlier or later opening of the canal. In a few cases canal boats began to arrive in New York as early as the first of the month; in others there were no arrivals, or very few, till June. The opening was early in 1880, but it was very late in 1881, when the receipts were nearly twice as great as this year.

The belief in the proportion of working expenses to earnings as a criterion of economy has in England led to some strange judgments. At the last meeting of the Mexican Railway Company one of the shareholders charged misrepresentation in the report of the working expenses, because the President of the company himself described the line as one very hard to work, and yet the report showed the expenses to be less than 42 per cent. of the earnings, against 50 per cent. on the London & Northwestern and 75 to 80 per cent. on the Grand Trunk of Canada. "I say the thing is absurd," said this suspicious shareholder. If he had examined the expense per train mile, and found it, as he would have found it, some \$3.25, against 70 cents on the London & Northwestern and \$1.12 or so on the Grand Trunk, he would not have made such an idiotic statement. If the Grand Trunk got the Mexican Railway's rates, its expenses would be less than 10 per cent. of its earnings. There is absolutely no connection between ratio of expenses to earnings and cheapness or dearness of working, but the assumption that there is has caused a great many blunders.

A ruling was made by Judge Angle at a special term of the court in Monroe County, N. Y., in passing upon the referee's report in the petition for the foreclosure of the Rochester & Pittsburgh Railroad Company, which, if sustained, will very seriously hinder railroad companies in difficulty from obtaining any financial relief from directors who might be willing to take their securities at a discount. The paragraph in Judge Angle's decision sending the case back to the referee is as follows:

"One question now made is whether the bondholders (or their firms) who were directors or officers of the company should have been allowed any greater amount than the sums they respectively paid for the bonds when issued to them by the company or by the plaintiff. In most cases the amount paid was but 75 per cent. of the face value of the bonds, but in one case it was only 65 per cent. Under the cases cited by the plaintiff's counsel, if these director-stockholders have paid par for their bonds, there could be no question of their right to collect the full face; but none of these cases are where directors have paid or had advanced less than par for the bonds. The proposition involved appears to me to be this: Can directors of a corporation pay or advance to the corporations \$75 and take therefor and enforce against the corporation or its property a security for \$100, even where they have first given all the stockholders an equal or even the first chance to take the securities at the same discount. My conclusion is they cannot."

It appears by the record that members of the firm of Walston H. Brown & Bros. and A. Iselin & Co. were directors in the company, that the second-mortgage bonds of the company were offered to all the stockholders in proportion to their holdings, at 75 per cent., but very few of the stockholders availed themselves of the offer. These firms with some others, however, subscribed for their full proportion, and it was claimed that if the other stockholders had done as much that the road would have been put in funds, and foreclosure would have been unnecessary. The effect of this decision is, that they are allowed to come in as creditors for only 75 per cent. of the par value of the bonds which they took, while individual stockholders became creditors for the full face value of their bonds. The decision even goes further than this: Messrs. Iselin & Co. advanced money to the corporation on pledge of \$500,000 of the second-mortgage bonds. The Court rules that they can be considered as creditors only for the amount of their advances, while outside holders of the second-mortgage bonds are creditors for the full face of the bonds. Thus, in case they took the bonds as collateral at 50 per cent., the second-mortgage bondholders would receive from 25 to 50 per cent. more than the bankers who held them as collateral for money loaned. Fortunately the decision in this case works no injustice, as they will buy the road in.

The application of this ruling to the West Shore, the Buffalo, New York & Philadelphia, the Nickel Plate or

any one of the many other companies whose bonds were taken by the directors at a price below par, would have a very serious effect, although under the ruling of Judge Angle all that would be necessary for them to do would be to sell them immediately to a third party who would, immediately, retransfer them back to the original owner, thus effectually evading the disastrous consequences of such a ruling.

Chicago, Burlington & Quincy Earnings in April.

It will be remembered that the March earnings of this road were extraordinarily large; in April its earnings were much larger than last year, but they were very much less than in March. In fact, there has been a regular see-saw of the earnings all this year so far, as witness the figures for successive months:

January.	February.	March.	April.
\$1,992,484	\$1,601,915	\$2,639,109	\$2,065,069

This is an abnormal variation, but it is naturally explained. The blockades which interrupted traffic in February more on this road than on any other, perhaps, materially reduced the traffic of that month, and increased that of March by an almost equal amount. Let us say that \$300,000 of earnings were postponed from February to March in this way, and we shall find the earnings regular enough—about \$1,900,000 in February and \$2,340,000 in March, and a decrease of \$275,000 instead of \$574,000 from March to April. Usually the earnings are less in April than in March, but they were never before so much less, except in 1883, when circumstances were similar—traffic was held back in January and February and came forward with a rush in March, and then fell off \$572,000 (24 per cent.) in April, not because the April business was unnaturally small, but because the March business was unnaturally large. So this year we may probably consider April as an average specimen of the year; and as there was an increase of 12½ per cent. in the gross and of 34½ per cent. in the net earnings then, that will be a very agreeable conclusion to adopt.

For six successive years the earnings and expenses of the Chicago, Burlington & Quincy in April have been:

	Gross earnings.	Expenses.	Net earnings.
1880	\$1,489,894	\$796,072	\$793,822
1881	1,574,371	875,313	699,058
1882	1,530,838	823,146	707,692
1883	1,824,130	1,166,62	657,518
1884	1,832,451	1,187,248	645,203
1885	2,065,069	1,195,609	869,469

Compared with last year the increases are:

	Gross earnings.	Expenses.	Net earnings.
Amount.	\$232,618	\$8,361	\$24,257
Per cent.	12.7	0.7	34.8

The very small increase in expenses is noticeable, because heretofore, while nearly all other railroads were reporting large decreases in expenses, this one has shown important increases. In March the increase was \$235,800, or 23 per cent., which was nearly half the increase in earnings; in April the increase in earnings was nearly 28 times the increase in expenses.

It should be remembered that though April was a very unfavorable month for railroad earnings for the country as a whole, the roads west of Chicago did comparatively well then, 13 of them showing a decrease of only 1.7 per cent. None that reports, however, shows anything like such an increase as the Burlington's. Indeed, its gain in gross earnings was nearly three times as great as the aggregate gain of the seven other railroads there that have reported a gain for April. The Chicago & Alton, next south, showed a small decrease; the Northwestern, next north in Illinois, showed a trifling increase; the Union Pacific, next west, had a decrease of 6 per cent., against the Burlington's increase of 12½ per cent. Thus the Burlington did exceptionally well in April, and it is not quite easy to understand why it should have done so very much better than any of its neighbors.

For the four months ending with April, the mileage, earnings and expenses of the road for six years have been:

Year.	Miles.	Gross earnings.	Expenses.	Net earnings.
1880.	2,597	\$6,067,022	\$2,93,269	\$3,145,753
1881.	2,692	5,35,280	3,052,082	2,283,227
1882.	2,960	6,213,189	3,486,567	2,726,622
1883.	3,231	7,457,4,5	3,902,312	3,555,103
1884.	3,335	7,557,713	4,234,113	3,333,600
1885.	3,467	8,298,578	4,695,959	3,602,619

Thus gross and net earnings and expenses were all larger this year than ever before, though the net earnings were very little greater than in 1883. Per mile of road, the gross earnings for the four months were also greater than ever before, and were greater than in the extraordinarily favorable year 1880 (\$2,393 in 1885, against \$2,336 in 1880), but the net earnings per mile have been greater in two years. These have been:

Year.	1881.	1882.	1883.	1884.	1885.
Amount.	\$1,211	\$821	\$1,100	\$996	\$1,030

Thus, the net earnings per mile were 4½ per cent. more than last year, but 5½ per cent. less than in 1883, and 14 per cent. less than in 1880.

Compared with last year, the increase in total gross and net earnings has been:

	Gross earnings.	Expenses.	Net earnings.
Amount.	\$740,865	\$161,846	\$279,019
Per cent.	9.8	10.8	8.4

Four-fifths of the increase in the net earnings was made in April. The addition to the stock sold last year requires about \$550,000 per year, or \$183,300 for the four months, for an 8 per cent. dividend, and the fixed charges will probably be less rather than greater than last year, the capital for new lines having been provided by this stock and not by bonds, which latter are being largely reduced yearly by

sinking funds—last year by \$938,000. Last year in these four months this road made 29 per cent. of its net earnings. The largest earnings come after July, but when there is much corn to move, earnings are usually much larger in May, June and July than in earlier months, which was not the case last year. There is this year a large crop of corn on this road, but it did not come forward very freely in May, nor in April. May, therefore, may not this year have yielded much more than April, but a very large increase is possible in June and July. Later in the year the next harvest will have a great influence.

The decrease in passenger earnings was less in April than in any previous month of this year, the amount of decrease in these earnings having been:

Dec.	Jan.	Feb.	March.	April.
Amount.	\$76,062	\$52,759	\$62,355	\$20,989
Per cent.	17.3	14.1	17.4	5.8

There has been a decrease in passenger earnings on this road in every month since October last, and there was a decrease also in August and September; but in each of the first seven months of 1884 the passenger earnings were larger than in 1883, and in each of the first three months of this year they were not only less than last year but also less than in 1883, as follows:

January	1883.	1884.	1885.
Amount.	\$253,437	\$374,408	\$321,649
Per cent.	306,534	358,406	296,150

Four months. \$1,494,867 \$1,595,572 \$1,444,249

Thus the passenger earnings this year for the four months were 9½ per cent. less than last year, and 1.4 per cent. less than in 1883. Compared with 1883, there was a decrease of \$54,506 (5 per cent.) in the first three months of this year, but an increase of \$33,889 (8½ per cent.) in April.

This latter would be more encouraging if the passenger earnings had not been exceptionally light in April in 1883, as they were.

The increase in freight earnings in April was no less than \$240,456, or 18½ per cent. This is enormous, but not so great as in either January or March, while in February there was a decrease of \$326,129 (21½ per cent.) in the freight earnings. In every month except February the freight earnings were larger this year than in 1883, and while there was a decrease of \$144,325 (2½ per cent.) in freight earnings for the four months from 1883 to 1884, there was an increase of \$642,997 (11½ per cent.) from 1883 to 1885.

The increase in "mail and miscellaneous" earnings we have before spoken of as phenomenal. In April, however, it was not noticeably large (6 per cent.) In March it was 30 per cent.; in February, 18, and in January, 51 per cent. For the four months these miscellaneous earnings have been:

1883.	1884.	1885.	
Amount.	\$313,902	\$427,839	\$632,708

Thus this year they were nearly 25 per cent. greater than last year and 70 per cent. greater than in 1883. The increase in these earnings (mostly made by passenger trains) since last year was equal to more than two-thirds of the decrease in passenger earnings, and since 1883 to ten times that decrease, and it is therefore important. In 1883 these miscellaneous earnings were 4.2 per cent. of the total earnings; this year 6.4 per cent. If this rate of increase in these earnings were continued, it would make them \$917,000 more this year than in 1883, which alone is \$1.20 per share of stock. This is not at all probable, however, for the increase from 1883 to 1884 was unusually large in the first part of the year—36 per cent. in the first four months, against 20½ per cent. in the last eight months. But if the rate of increase over 1884 is continued it will give \$734,000 more than in 1883 and \$455,500 more than in 1884—the former 96 cents and the latter 60 cents per share of stock.

Erie Earnings and Expenses in April.

The New York, Lake Erie & Western has heretofore succeeded better than most lines in keeping its net earnings nearly up to those of last year, its decrease (net earnings less rental of New York, Pennsylvania & Ohio) for the first half of its fiscal year, ending with March, having been only \$72,800, or 3 per cent.; but this was not at all because it had good earnings this year, but because it had wretched ones last year. But in April last there was the large decrease of \$123,451 (31 per cent.) from the light net earnings of last year—a decrease two thirds greater than that of the entire six months previous. It should be said, however, that though the net earnings were bad last year in April, they were not so very bad in that month as they had been for four months previous, nor as they were for two months afterward. It was, in fact, an exceptionally favorable month for the season, while this year it was much less favorable than March. Thus the net earnings, less the New York, Pennsylvania & Ohio rental, in each of the first six months were:

Jan.	Feb.	March.	April.	May.	June.	
1884.	\$85,773	\$238,221	\$212,627	\$382,465	\$341,777	\$360,628
1885.	170,638	235,827	364,137	269,013	.....	.....

The gross and net earnings and working expenses of the Erie proper in April for the eight years since the reorganization have been:

Year.	Gross earnings.	Expenses

cent, in net; since 1882, 34 per cent. in gross and 55 per cent. in net.

There was a loss of \$26,793 on the New York, Pennsylvania & Ohio lease in April this year, against a loss of \$46,884 last year, and the Erie's income from both systems was thus \$269,013 this year, against \$392,465 last year, which are to be compared with its net earnings in the above table previous to 1884, before the lease.

The earnings and expenses of the New York, Pennsylvania & Ohio in April this year and last were:

	1885.	1884.	Decrease.	P. c.
Gross earnings.....	\$393,182	\$484,865	\$91,683	19.0
Expenses.....	294,156	376,592	82,436	22.0
Net earnings.....	\$99,026	\$108,273	\$9,247	8.5

The decrease in earnings is greater on this leased line than on the Erie proper (19 per cent. against 14), the decrease in expenses very much greater (22 per cent. against 5½), and the decrease in net earnings only 8½ per cent., against 32% on the Erie proper. The better return to the Erie from this road is due to the smaller rental. The gross earnings of this road in April for the last nine years have been:

	1877.	1882.	1885.
	\$303,143	1882.	\$450,335
1878.....	281,634	1883.	
1879.....	300,812	1884.	484,865
1880.....	412,871	1885.	393,182
1881.....	478,251		

Thus the earnings were smaller this year than in any other since 1879, having been largest last year. The difference between the Erie and the Chicago & Atlantic tends to divert from this road a great deal of through traffic. This traffic is not worth anything at this time, but it swells the gross earnings (and increases the rental to be paid by the Erie). Perhaps the diversion was not so great in April as it has been since.

For the seven months of its fiscal year ending with April, the earnings and expenses of the Erie proper have been:

	Gross	Net.
earnings.	expenses.	earnings.
1877-78.....	\$9,271,136	\$3,379,018
Amount.....	\$1,497,414	\$1,094,867
Per cent.....	14.5	14.8
1882-83.....	2,576,656	1,746,226
Amount.....	22.6	21.8
Per cent.....	24.7	

Gross and net earnings and working expenses for the seven months were all smaller this year than ever before, and the decreases from last year and the year before were:

	Gross earn.	Expenses.	Net earn.
Amount.....	\$1,497,414	\$1,094,867	\$402,547
Per cent.....	14.5	14.8	13.7
1882-83.....	2,576,656	1,746,226	\$30,430
Amount.....	22.6	21.8	24.7

Nearly three-fifths of the decrease in gross earnings in the last two years occurred this year, but not quite one half the decrease in net earnings, the decrease in working expenses having been \$651,359 from 1883 to 1884 and \$1,094,867 from 1884 to 1885.

There was a loss of \$20,582 on the lease of the New York, Pennsylvania & Ohio for the seven months this year, against a loss of \$226,880 last year, and the income of the Erie for the whole system was therefore \$2,505,626 this year, against \$2,701,875 last year, a decrease of only \$196,249, or 7½ per cent. This income is to be compared with the net earnings previous to last year.

The earnings and expenses of the New York, Pennsylvania & Ohio for the seven months were:

	1884-85.	1883-84.	Inc. or Dec.	P. c.
Gross earnings.....	\$3,028,931	\$3,526,993	-\$498,062	14.1
Expenses.....	2,080,255	2,625,232	- 544,977	20.8
Net earnings....	\$948,676	\$901,761	+ \$46,915	5.2

Thus the decrease in expenses on this line has been so large that there was actually an increase in its net earnings.

The circumstances are decidedly more unfavorable for this road now than they were last year, and it is much more likely that for the remaining five months of the fiscal year the net earnings will be less than that they will be more than last year. Then 52½ per cent. of the income of the year was made in the seven months ending with April. At that rate the income this year will be a little less than \$4,800,000, while the requirements for fixed charges other than interest on the consolidated bonds, which interest is suspended, must be something more than \$5,000,000.

We have so far reports of earnings in May from 25 railroads, whose aggregate earnings were:

	1885.	1884.	Decrease. P. c.
Earnings.....	\$10,382,718	\$11,129,742	\$747,024 6.7

Among these roads there is but one, the Canadian Pacific, which had a very large increase in mileage, and it is also the only one with a large increase in earnings. Omitting it the decrease is 8½ per cent. Six of the 25 roads have an increase in earnings, the larger percentages of increase being 12½ per cent. by the Hoosac Tunnel & Western, 38 by the Canadian Pacific, 14½ by the Eastern Illinois, 10 by the Ohio Southern, and 17 by the Rochester & Pittsburgh. The large decreases are 24½ per cent. by the Central Iowa, 24½ by the West Michigan, 31 by the Detroit, Lansing & Northern, and 21½ by the Flint & Pere Marquette.

For five successive years the total May earnings of the following roads have been:

	1881.	1882.	1883.	1884.	1885.
Northern Pac.....	\$312,705	\$16,231	\$78,916	\$1,278,804	\$89,400
St. P. & D.....		85,682	102,140	100,723	87,193
C. & M. & St. P.....	1,538,491	1,627,938	2,029,514	1,686,768	1,875,000
C. & N. W.....	1,876,000	2,110,917	2,157,206	2,076,833	1,977,800
C. & St. P. M. & Om.....	350,125	402,882	449,584	513,349	475,600
H. C. R. & N.....	155,633	149,218	208,672	221,572	236,334
III. Cen. in Iowa.....	145,943	143,55	158,166	134,383	133,790
Chi. & Alton.....	548,555	559,577	646,729	625,661	581,553
III. Cen. in Ill. & So. Div.....	765,291	748,000	748,803	738,410	831,041
Peoria, D. & E.....	55,523	60,014	58,347	50,271	52,271
C. & E. Ill.....	114,206	146,739	128,079	112,369	128,568
St. L. & San Fran.....	274,086	232,460	289,156	337,512	319,000
Flint & P. M.....	162,520	175,113	229,004	220,490	172,478
Louis. & Nash.....	896,726	958,130	1,002,348	1,156,109	1,093,187
Mobile & Ohio.....	145,803	134,378	141,976	142,774	125,119

The great decrease by the Northern Pacific makes a total

decrease of about \$1,250,000, or more than one-third, in the three spring months. The St. Paul's decrease follows a decrease last year; the Northwestern's earnings are the smallest since 1881, and those of the Iowa lines of the Illinois Central were the smallest since 1880 at least. The Chicago & Alton's decrease is larger than it has had heretofore, though not very large; but the earnings of the Illinois lines and the Southern Division of the Illinois Central are the largest it ever had. The Eastern Illinois earned considerably more than last year, but less than in any other year since 1881, and the Flint & Pere Marquette's earnings were the smallest since 1881.

Last year, May was a fair month, 71 railroads earning per mile 2.8 per cent. less than in 1883.

The Chicago through shipments eastward for the week ending June 6 were a little greater than the week before, and larger than in the corresponding week of any previous year, having been, in tons :

	1880.	1881.	1882.	1883.	1884.	1885.
	32,403	40,029	26,762	26,093	50,615	43,083

The decrease from last year is 15 per cent.; the increase over 1883 or 1882 more than 60 per cent., and over 1881 7½ per cent.

The total shipments in each of the last six weeks and the percentage going by each railroad have been :

	Week ending					
Tons:	May 2.	May 9.	May 16.	May 23.	May 30.	June 6.
Flour.....	17,219	17,041	14,615	9,136	5,080	5,354
Grain.....	27,430	53,360	43,018	33,691	27,424	30,120
Provisions.....	7,139	8,099	7,117	7,165	6,993	7,609
Total.....	51,788	78,500	64,750	49,902	40,399	43,083

Per cent :

C. & Grand T.	5.1	4.0	5.0	8.4	9.1	6.2
Mich. Cn.....	13.0	23.	28.6	28.8	22.7	22.0
Lake shore.....	0.4	17.6	14.1	13.8	15.3	16.3
Nickel Plate.....	6.3	7.2	7.6	11.7	11.3	13.6
Ft. Wayne.....	30.1	21.8	15.6	14.5	15.0	16.8
C. St. L. & P.....	14.5	9.2	9.6	6.4	9.8	7.6
Balt. & Ohio.....	4.4	8.2	11.2	13.2	11.2	10.7
Ch. & Atlantic.....	17.2	5.4	3.4	3.9	5.9	6.8
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

There was a decrease last week in comparison with the week before of 10½ per cent. in flour, but an increase of 10 per cent. in grain and 9 per cent. in provisions. With the exception of the week before the total shipments were the smallest of this year with two exceptions. The rates were 15 cents or less on grain and flour.

The percentages of the different roads were less irregular than in most recent weeks, the most notable features being the largeness of the Nickel Plate and the smallness of the Chicago & Grand Trunk shares. The three Vanderbilt roads carried 61½ per cent. of the flour and 56 per cent. of the grain, but only 31 per cent. of the provisions; while the two Pennsylvania roads carried 46 per cent. of the provisions, but only 23½ per cent. of the flour and 19½ per cent. of the grain.

There are already signs of an increase in the corn movement, the lightness of which in April and May we noticed last week. In the last week of May the receipts of the Northwestern markets were 1,850,000 bushels, which is nearly one-half greater than the average for six weeks previous, and incomplete returns for last week indicate that they were still greater than the receipts are not so large as in some other years of heavy movement, but much larger than last year.

The railroads continue to carry the larger part of the grain from the Northwestern markets, in the last week of March taking 66.6 per cent. of the whole, while only 30 per cent. went by lake and the remainder down the Mississippi.

The receipts of lumber at Chicago for the first five months of the year were 249,338 thousand feet this year, against 365,364 thousand last year and 253,555 in 1883. Thus the receipts this year were 32 per cent. less than last year, but only 1½ per cent. less than in 1883. The decrease in receipts, however, has been much greater, doubtless, than the decrease in consumption. The consumption has been supplied chiefly from the stock on hand at the beginning of the year, which was 623,910 thousand this year, against 635,348 last year. Thus the whole available supply was 873,248 thousand this year, against 1,000,712 last year, a decrease of but 14½ per cent. The decrease in consumption may not have been at this rate even.

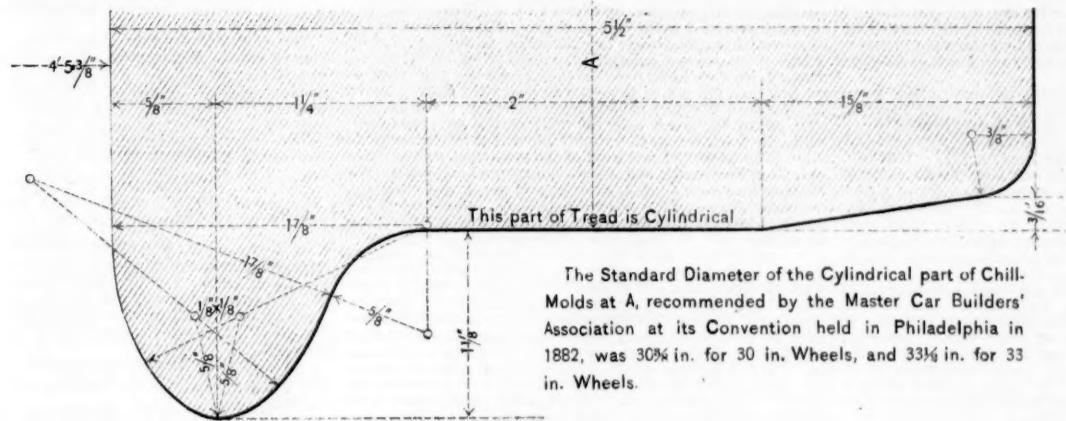
The railroads continue to carry the larger part of the grain from the Northwestern markets, in the last week of March taking 66.6 per cent. of the whole, while only 30 per cent. went by lake and the remainder down the Mississippi.

The connection between the St. Louis and the Hudson divisions is completed by laying track from Evansville, Ind., south to Henderson, Ky., 12 miles.

Pennsylvania.—The *Lewisburg & Tyrone Division* is extended from Oak Hall, Pa., west to Lemont, 2 miles.

Syracuse, Geneva & Corning.—A branch is completed from Dresden, N. Y., to Penn Yan, 5 miles.

Williamsport & North Branch



doubtful if the 2-in. cylindrical tread would be approved by the necessary letter-ballot.

Mr. CLOUD suggested that a preliminary vote be taken on the general question of cone or no cone, in order to determine in advance the probable result of a letter-ballot, and so gave a year's time.

While the general opinion seemed to be that the proposed vote was desirable, it was not reached before the hour fixed for adjournment.

Mr. JOHN KIRBY said that there was much misapprehension and some very mistaken views as to the real cause of sharp flanges. They did not look in the right place for the cause. Every sharp flange would be found to be caused by extra soft wheels or by badly-matched diameters, both in steel-tired and cast-iron wheels. He had found two pairs of 42-in. steel-tired wheels recently, both running to the flange on one side. He had taken them out and rematched them, and entirely cured the trouble. There was not sufficient trouble taken to match wheels. It was almost unheard of that there should be two sharp flanges on one axle.

Mr. AINSWORTH thought that they were often found on one axle. He had seen a number recently.

Mr. WILDER agreed emphatically with Mr. Kirby. Mr. Ainsworth's observations had probably been on rematched wheels. It was usual to rematch them in this way and in a measure cure the evil.

Mr. BARR had very carefully studied the subject, and his road had very careful records, and there were few or no cases of two sharp flanges on one axle. He agreed decidedly with Mr. Kirby as to the cause of sharp flanges. He also thought a flange 1 in. deep instead of 1 1/8 in. was enough. He also considered bringing the two flat surfaces of the tread to a sharp intersection without rounding off was a great oversight. The speaker also thought that a radius of 3/4 in. in the angle of the flange would be better than 5/8 in.

A warm discussion continued for some time on this question, and on whether or not the entirely cylindrical tread would have an injurious effect. The general sentiment seemed to be that a little coning, perhaps 5/8 in. in the 2 in., would be well, although no vote was taken it is impossible to say decidedly what was the real sentiment of the convention. As respects the cause of sharp flanges, such opinions as were expressly given by some five or six members were all to the effect that the cause lay chiefly, if not wholly, in defects in the wheel or in bad matching or bad trucks, and not in the effect of the rail section. The contrary side was not explicitly taken by any member.

Mr. FORNEY, however, explained that in acceding to the committee's recommendation that the radius of the corner of the flange be 5/8 in., he did not waive his own preference for a 3/4-in. radius, stating that he did so because the maintenance of waymen who had responded to his circular had all expressed a preference for a 3/4-in. instead of a 5/8-in. radius for the corner of rails, and by implication that he regarded it as desirable that the radii of the flange and the rail corner should correspond.

Mr. ADAMS said that some action in the direction of uniformity seemed very desirable. Every maker was making his wheels of different diameters.

A motion to adjourn then interrupted the discussion, and the members went over to the train, which took them to New-Port News, where a number of different patents were exhibited.

SECOND DAY.

On the second day of the convention the forenoon session and a good portion of the afternoon session were given up to completing the revision of the rules for interchange of cars, and a large number of revisions were acted upon, one at least in almost every important section. The general effect of the changes, which will be noticed in more detail, was to lower the prices now fixed for cars and parts of cars, to simplify and condense the rather mixed schedule of prices now fixed for wheels and axles, while yet extending their scope so as to cover many cases which occur in practice and are not properly covered by the rules as they stood, and to provide that the rules shall be properly studied and codified in advance by the Executive Committee during the ensuing year, so that all suggestions by any road may have been duly weighed and may come before the revising body (which hereafter as already voted will be the Master Car-Builders' Association acting as such) with carefully weighed recommendations. The discussion on all these revisions and proposed revisions was general, vigorous and to the point, and the voting clean-cut and decided, there being almost always votes on both sides of every proposition, indicating that every member was giving the propositions close attention and took a direct personal interest in them, as was natural from their great business importance.

Immediately after the Revision meeting the car coupler question was taken up. A special meeting to discuss this had, as our readers know, been called by a special circular, in which all railroad officers and managers and state railroad commissioners were especially invited to attend and take part in the discussion. Very few actually responded to this invitation; in fact, so far as appeared in the public proceedings, only one, the Hon. Wm. McPherson, Jr., Railroad Commissioner of Michigan, although one or two others were understood to be present but declined to take part in the proceedings. Nevertheless, the invitation had in a measure committed the Association to holding some kind of a general discussion and certainly the "car-coupler men" had come to the convention on the strength of the invitation in unusual force; yet at the very opening of the session a resolution to lay the whole subject on the table came very near being adopted, and plainly coincided with a general feeling that any attempt at positive action of any kind by the Association as a body would be almost foredoomed to fail.

ture; and hence, that any extended discussion would be, on the whole, a waste of time. What was actually done was to refer the whole question to the Executive Committee, on motion of Mr. E. B. Wall, with instructions to consider and investigate the whole matter, and to solicit the co-operation and financial assistance of the railroads in so doing, for the employment of experts, making of tests and other similar purposes. Another perhaps still more positive action—in form at least it was certainly more positive—was the passage of a resolution on motion of Mr. John W. Cloud, to the effect that it was the sense of this Association that the independent action of state legislatures was already increasing the danger to life and limb of employés and that any further attempt to prescribe standards by state legislatures or state commissioners acting independently of each other, would be far more likely to do harm than good.

On this resolution, the vote was in fact so far unanimous that no single person voted "no" against it and no one argued against it. In fact, however, few voted at all, and the sense of the convention seemed to indicate simply that the great body of those present had no very strong conviction upon the matter one way or the other, and felt great hesitation about taking sides, except as to the general fact that something ought to be done within a few years must be done. As to the latter, it was clear that the Association was practically unanimous, but some members who did not vote on Mr. Cloud's resolution expressed in conversation the belief that so far as state legislatures had as yet acted on the question, they had on the whole done good by helping to concentrate general attention on the matter and bring it to a head.

Another matter arose in the second day's session, which excited no little interest. For the first time in the history of the Association division has arisen as to the choice of officers. Immediately after the adjournment of the meeting for revision of rules for interchange of cars the Secretary surprised great numbers of the members present by reading a communication from J. Hodge, Jos. Townsend and Jos. McIlvaine, stating that in accordance with Art. 8, Sec. 1 of the constitution (giving the right to any three members to place independent candidates in nomination) they nominated Mr. F. D. Adams, of the Boston & Albany Railroad, as President of the Association, and Mr. Wm. McWood (as already nominated by the regular committee) as First Vice-President. The motive for the opposition appears to be in part an idea that a certain interest has undue influence in the Association, and in part a feeling that one of the older men should be chosen as President, and that it involves something of a slight to them to nominate a younger man. Subsequently Mr. Adams withdrew his name in favor of Mr. Verbyck, who received 50 votes and was elected.

Up to the close of the second of the three days of the convention, therefore, the regular business of the Association as such has not been touched at all, except to hold a short and uncompleted discussion in the first one of the 12 committee reports to be presented. On the following and (if the programme be adhered to) final day, the afternoon has already been set aside for a sail on the bay, at the invitation of the Chesapeake & Ohio Railroad Co. It goes without saying that the business of the final day will probably be a little crowded, but one work at least has been in the main well and carefully done—the revision of the interchange rules, and the discussion of the car-coupler question has at least put it in more hopeful shape for action at the next convention.

The reference of the question to the Executive Committee, with the request that its report be printed and given general circulation one month in advance of the convention, will increase the chance of effective action next year. The lack of similar preliminary action and discussion this year has greatly impeded the rapid progress of business, as has been clear in many ways.

The number of exhibits by manufacturers and inventors at this convention is great. We postpone any further note of them until another issue, as all were not in place until too late for any specific summary of them. For much the same reasons we postpone till our following issue any fuller report of the changes in the interchange rules and following proceedings. As the rules do not take effect until Aug. 1, immediate presentation of them is less important than that when presented they should appear correctly, and the changes in some of the rules were so numerous that only the official copy will insure corrections.

The Convention decided to meet next year in Boston. The following committee reports have been received:

REPORT OF THE COMMITTEE ON STANDARD HOUSE CAR TO CARRY 600,000 POUNDS OF LADING.

Your committee appointed to report upon a Standard House Car to Carry 60,000 Pounds of Lading, beg leave respectfully to report that they have agreed upon the following dimensions for such a car, and recommend the same for adoption:

Length over end sheathing.....	35 ft.
Inside length in clear.....	34 ft.
Width over side sheathing.....	9 ft.
Width at eaves.....	9 ft.
Height when empty, top of rail to top of eaves.....	11 ft. 4 in.
Height when empty, top of rail to top of running board.....	11 ft. 10 in.
Height when empty, top of rail to top of brake shaft.....	12 ft. 10 in.
Height when empty, top of rail to centre of draw-head.....	2 ft. 9 in.
Height when empty, top of rail to bottom of side sill.....	3 ft.
Height of inner lining.....	5 ft.

Body bolster to be of iron, 12 in. wide.

Distance from centre to centre of trucks.....

Width of doorway in clear.....

Width of running board.....

Your committee would further report as their opinion, that the matter of framing and trussing of this car, as well as of the framing and trussing in general, is not of such a nature as to make it important that the Mas-

ter Car-Builders' Association should have a standard, inasmuch as uniformity in this would not be greatly advantageous in the interchange of cars and in their repairs. For the above reasons, and because of the varying preferences of the members of this Association, we think it would not be desirable for this Association to adopt a standard for such framing and trussing.

In regard to the matter of a truck for the car on which we were to report, it is the opinion of this committee that we could not at this time do any useful work in this matter, for the reason that there is a special committee of the Association appointed to report on trucks of 40,000 pounds capacity, and it is our opinion that if the Association decides upon a good type of truck of that capacity, it would be desirable to retain the same type for cars of 60,000 pounds capacity, with only such alterations as might be necessary in the size of its parts.

H. STANLEY GOODWIN,

JOHN W. CLOUD,

LEANDER GAREY,

F. M. WILDER,

L. PACKARD,

WM. MCWOOD,

R. MCKENNA,

R. H. SOULE,

Committee.

REPORT OF THE COMMITTEE ON STANDARD FREIGHT TRUCKS.*

The previous reports and discussions on this subject are found in the printed proceedings of the Association, as follows:

Niagara meeting, 1882, page 54.

Chicago meeting, 1883, page 79.

Saratoga meeting, 1884, pages 36, 102, 108.

The discussions of our previous reports have resulted in instructions, as follows:

1. The truck shall be designed for a car of 40,000 pounds capacity.

2. It shall be of the diamond type, with cross channels, so that it may be used with a swinging bolster or a rigid one.

3. The wheel base shall be 5 ft.

4. The centres of arch-bars shall be spread laterally 6 ft. 3 in., as required by the standard axle.

5. The distance between centres of bolts through journal boxes shall be 8 in., as fixed by the standard journal box.

We have designed a truck in accordance with these instructions, and the plan is submitted for your approval.

The drawing is sufficiently detailed to secure uniformity in the construction of the wrought-iron frame and cross channels.

The smaller details have not been worked out, because that can be done best after the general plan has been discussed and approved, and some of the trucks are built.

The side frame-bars are 3 1/2 in. wide, the arch-bar 1 1/8 in. thick, the inverted arch-bar 1 in. thick, and the pedestal tie-bar 1/2 in. thick.

The frame bolts are 1 1/8 in. diameter, with a load of 10,000 lbs. on each journal; the stress, per square inch, on the arch-bar is 4,000 lbs., in the inverted arch-bar 5,300 lbs., in the bolts through channels 5,700 lbs., and the shearing in the bolts through the journal boxes is 5,000.

In the channel-bar at the point of greatest bending moment the unit stress is 7,800 lbs.

In the trussed bolster, assuming a stress of 10,000 lbs. per square inch in the truss rods, that in the oak is 2,400 lbs. In the rigid bolster the stress in the oak is 1,950 lbs. per square inch. The unit stress on the swing hanger is 4,500 lbs., and the shearing stress in the swing hanger shaft 4,500 lbs.

The figures show an ample margin for safety in the proportions of the proposed truck.

The standard journal box will have the bolt holes enlarged for 1 1/8-in. bolts, and a proper thickness of metal around the holes, extending slightly into the box. The truck is arranged for convenient application of automatic train brakes, and for the suspension of the brake beam between the wheels and from the truck frame.

The brake beam and shoe form the subject of another committee, but our plan will admit of almost any form they may recommend.

A number of trucks should be built from the plans presented, the best form for the details will then be determined, and we trust that a final plan and details may be prepared and adopted at the next meeting.

ROBERT MILLER,

J. A. BARR,

WILLIAM FORSYTH,

JOS. WOOD,

WM. MCWOOD,

H. S. BRYAN,

Committee.

THE SCRAP HEAP.

The Accident at Concord—Flying Switches.

The Massachusetts Railroad Commissioners have rendered the following decision on the recent collision at Concord—a collision not important in itself, but involving an important principle:

A rear collision on the Fitchburg Railroad occurred June 6, at Concord. Two cars, as part of passenger train 109 from Boston to Fitchburg, had taken a special party to Lincoln. These two rear cars were to be detached and held at Concord till the arrival of a down train.

The depot-master at Boston had ordered the conductor to draw these cars to the station at Concord, where the station agent would tell him what to do with them.

At Lincoln, on the way to Concord, a telegram was received from the Concord station-master, directing that the two cars should be cut off on the grade—a space of a mile with a down grade of 34 ft.—so that they might be switched

* The drawing presented with this report has not yet been received.

across the down track. This order the conductor obeyed. But the brakeman in charge failed to properly check the speed of his two cars, so that the switchman had not time to throw the switches after the main train had run by and before the two detached cars came on.

The result was that these cars struck the rear of the train while it was discharging its passengers at Concord, injuring several of them somewhat by the shock and by bruises.

1. Rule 64 is as follows: "Cars must not be switched when they can be set on side tracks with engine." This rule is only a re-enactment of one of the first laws of safe railroad practice. A flying switch of a passenger train, or any part of a passenger train, should not be made. This rule the station agent at Concord disregarded. To switch these cars would save a little trouble. But there was nothing to justify the violation of a positive rule founded on a prudent regard for the safety of passengers.

2. The conductor was justified in obeying the positive order of the station agent, who not only had general authority to direct him in the Concord yard, but whom he was particularly ordered to obey in his disposition of these cars. Literally, he was directed to go to Concord and follow the order of the agent as to these cars. He followed the spirit of these directions when he obeyed the order of the agent given in advance of his arrival at Concord. To have disregarded it would have been a dangerous act of insubordination.

When the station agent's order was communicated to him by telegram, he had no reason to suppose that some special circumstances called for an exception to the general rule. At all events, his duty was to obey his immediate superior; and at this time and place, and for this matter, the station agent was his immediate superior. When a new rule shall forbid obedience in such a case, and shall absolutely prohibit the switching of cars in like circumstances, the duty of a conductor will be different.

3. The brakeman did not appreciate the amount of grade, and failed to do his utmost in checking the speed of the cars in his charge.

4. The switchman was at his post and did his whole duty promptly.

5. The accident, although fortunately not serious in its results, shows the importance of not only enacting, but of enforcing regulations against running switches, and of making it understood that the necessity which justifies them is a real one and not a mere convenience. And such, as we have reason to know, has been the rule of the Fitchburg managers for years.

A (n Ice) Petition.

The following is a petition dated May 30 last, which was handed to Mr. Thomas Walsh, Master Mechanic of the St. Louis Division of the Louisville & Nashville Railroad, at Mt. Vernon, Ill.:

DEAR SIR: We, the undersigned, would most respectfully suggest that perhaps in the great multiplicity of demands upon your valuable time, you may have overlooked the fact that exceedingly warm weather has come to us again with its sultry and burning heat, producing in the systems of your numerous employés (at this point) a great and exceeding thirst, which causes the necessity of almost constantly swallowing large and copious drafts of water. And the said water being acted upon by the same law of nature, heat, becomes warm, insipid and nauseous to the taste and debilitating to the system. Also, as you are aware that insipid or lukewarm water is a perfect and rapid generator of microbes and animalcule which is the living, animate germ of that most terrible and most dreaded of all scourges, the Asiatic cholera, with which we are at the present time so seriously threatened. And considering this matter from a pecuniary or business point, that we believe that if the said employés are allowed a reasonable quantity of water, made pure and palatable by the use of a proper quantity of ice to produce this result, that our systems will be thereby invigorated and fortified against the attack of disease, thus rendering our bodies strong and capable of great endurance and manual labor, our dispositions cheerful and agreeable, and the muscular system ready and willing to bear the burden of the day. Therefore, considering this matter from a pecuniary and sanitary standpoint, we would most respectfully ask that the several departments under your authority each be allowed daily such a quantity of ice that an economic use of the same will produce the desired results hereinbefore named. Therefore, believing in the justice of our petition, and the integrity, kindness and magnanimity of your heart that you will grant us this our simple request, we most respectfully subscribe ourselves your foremen: E. J. YOUNG, A. J. BRUNING, A. W. PATTON, JAS. YULL, T. J. COVER.

Train Wreckers in Russia.

Train wrecking and train robbing are not confined to this country, as appears from a cable dispatch from St. Petersburg, Russia, dated June 8, which says: "A terrible accident occurred on the railroad from Kostoff to Rostoff on the River Don. A bar of iron was placed across the track by robbers, and a train which came along was thrown from the rails and demolished. The number of killed and wounded is 70. The robbers, who were waiting for the smash-up, plundered the train. The wounded and other survivors were completely terrorized, and could make no resistance."

"Pushing the Work."

A few days ago a press dispatch announced that work had been begun at Forest City, N. C., on the Gaffney City, Marion & Rutherfordton Railroad and that the work would be pushed on the grading by the Massachusetts Construction Co., the contractor. The charter of the road in North Carolina required that work must be commenced by June 1 of this year at the latest. A North Carolina paper, anxious to chronicle the rapid progress of the road, sent a reporter to find out how many miles were already in condition for the rails. He found one man diligently employed on the road-bed, with full equipment of pick, spade and wheelbarrow. He had already graded some nine feet of the line, and was going ahead at the rate of about two feet a day. The construction force, however, had confidence in the future and was not discouraged, but said he would have the road finished after a while, if they only gave him time enough. The projected line is 225 miles long.

A Singular Accident.

A dispatch from Lockport, N. Y., June 5, says: "Brief reports in the press do not convey a very definite idea of the nature of the most unique railroad accident which ever happened in Western New York—that on the New York Central & Hudson River Railroad at Lockport, on June 2, by which the road was completely blocked and travel suspended more than five hours. A crowd of 5,000 people, which was attracted to the spot, lined the banks of the Erie Canal, curious spectators of the removal of the wreck. The canal gorge below the locks is spanned at this point by an iron bridge 500 ft. long and 100 ft. above the canal, over which runs the track of the Niagara Falls Division of the Central road. While a freight train for Buffalo was crossing this bridge, with an engine at the front and rear, the trucks of a car near the head of the train jumped the track at the eastern end of the bridge, and at the western end the car left the bridge and hung suspended over the canal, being held only by its

coupling, while its lower end rested on the broken rails of a footpath attached to the side of the bridge. Three other cars were torn from the train; one remained on the track of the bridge, with one end separated from the truck and projected upward; another hung over the bridge on the side opposite the first one, but not so as to extend over the canal. A fourth car was turned square around upon the track. Trucks were torn off in the crash and the ends of the cars splintered, while the track was as thoroughly blockaded as if done by design. The front and rear cars of the train had in the meantime been drawn off, and in an hour wrecking trains from Niagara Falls and Buffalo arrived and set about removing the obstructions. This was accomplished without much difficulty, except in the case of the car that hung at an angle of 45 degrees over the lock side of the bridge. Thousands of eyes were directed upon the delicate operation of replacing this car upon the track, and it was generally anticipated that when its movement was commenced its dead weight would tear it loose from the grappings which the wreckers had fastened to it, and send it thundering down upon the canal tow-path 50 feet below, and thence into the canal to obstruct navigation. To the great relief of the crowd the suspended car was steadily and safely lifted up by the strong machinery and skillful hands of the trainmen and deposited on a platform car on the track. Although the trouble and delay caused by this strange accident were great, the damage to either the track or the bridge was slight, and the freight was but little injured. Fortunately there was no loss of life, nor was any person injured, although several men were on the foot bridge at the time. Had the accident occurred an hour later, when many children would have been crossing the bridge returning home from school, the affair might have been attended with fatal results."

Boy Train Wreckers.

A dispatch from Bloomington, Ind., June 8, says: "Last evening a desperate attempt was made by two boys to wreck a south-bound train on the Monon road as it was coming around a curve at North Stinesville. A tie had been fastened by a stone across the track, and the engine was derailed. No special damage was done. The names of the culprits are Stucky Rogers and Edwin Rogers, and they are not over 17 years old. They acknowledge their guilt."

Railroad Relics.

The *Monthly Reporter* of the Railroad Branch, New York Young Men's Christian Association, says: Mr. J. M. Toucey, Mr. W. L. Squire and the General Secretary were appointed a committee to collect for our branch relics of historic interest in connection with the New York Central and the New Haven roads. Mr. Wm. Buchanan, Superintendent of Motive Power and Rolling Stock, has kindly given us several very valuable articles for our collection. Mr. Toucey has also donated a number of old and rare time-tables and other papers, among which is one made out probably by the Superintendent, assigning crews for trains, in which Mr. Toucey's name appears as conductor. J. J. Herrick was baggage-man; John Goving, Edward Ashley and Elliot Carpenter were brakemen. Next to Mr. Toucey's crew comes that of Mr. Cadwell, as follows: Wilber Thurber, baggage-man; J. E. Hull, H. Hemmingway, James Weeks and A. Whylund as brakemen. The date of this document is May 19, 1855 or '56. Space forbids further mention of the curiosities. Call and see them."

Railroad Young Men's Christian Association.

The *Monthly Reporter* of the New York Branch, which has its headquarters at the Grand Central Depot in that city, reports rapid increase of members and general prosperity. Lectures have lately been delivered by Hon. Chauncey M. Depew on "Poetry and Politics in the British Isles," and by Rev. Mr. Fletcher on "Camp and Field." Both were largely attended.

Fast Time on the Water.

The "Mary Powell," for a long time the fastest boat on the Hudson River, has been beaten at last in a fair race, although by a boat of much less size and entirely different build. The "Mary Powell" has a record of 26 miles in a single hour and of 100 miles in 4 hours, which, it is claimed, is the fastest long run ever made on the water. The new racer is the screw steam yacht "Stiletto"—95 ft. long and 11 ft. beam—built by Herreshoff Brothers, of Providence, R. I. The race (on June 10) was from the 23rd street pier in New York to Sing Sing, a distance of 30½ miles, which was run by the "Stiletto" in 1 hour 17 minutes—24½ miles per hour—and by the "Mary Powell" in 1 hour 23 minutes—22½ miles an hour. The time was not especially fast, but the wind and tide were both against the racers, a circumstance very favorable to the smaller boat.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

Oregon Railway & Navigation Co., annual meeting in Portland, Or., June 15.

St. Paul & Duluth, annual meeting, in St. Paul, Minn., June 15.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Central, of Georgia, 2 per cent., semi-annual, payable June 25. The June dividend last year was 2½ per cent., and the December dividend 3 per cent.

Chicago & Northwestern, 2 per cent., quarterly, on the preferred stock and 3½ per cent., semi-annual, on common stock, payable June 27. Transfer books close June 9.

Pittsburg, 2½ per cent., semi-annual, payable July 1, to stockholders of record on June 15.

Lehigh Valley, 1½ per cent., quarterly, payable July 15, to stockholders of record on June 18.

Manhattan, 1½ per cent., quarterly, on the consolidated stock, payable July 1.

Missouri Pacific, 1½ per cent., quarterly, payable July 1. Transfer books close June 20.

Morris & Essex leased to Delaware, Lackawanna & Western, 3½ per cent., semi-annual, payable July 1.

New York & Harlem (leased to New York Central & Hudson River), 4 per cent., semi-annual, payable July 1.

New York, New Haven & Hartford, 5 per cent., semi-annual, payable July 1.

Old Colony, 3½ per cent., semi-annual, payable July 1, to stockholders of record on June 5.

Western Union Telegraph, 1½ per cent., quarterly, payable July 15. Transfer books close June 20.

Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be held as follows:

The *Master Mechanics' Association* will hold its annual convention in Washington, beginning on Tuesday, June 16.

The *American Association of Train Dispatchers* will hold its annual convention in Denver, Col., on Tuesday, June 16.

The *Association of Railway Telegraph Superintendents*

will hold its annual meeting in Cleveland, O., on Wednesday, June 17.

The *Car Accountants' Association* will hold its annual convention in Minneapolis, Minn., beginning on Tuesday, June 23.

The *American Society of Civil Engineers* will hold its annual convention at Deer Park, Md., beginning on Wednesday, June 24.

The *General Baggage Agents' Association* will hold its half-yearly meeting in St. Paul, Minn., on Wednesday, July 15.

The *National Association of General Passenger & Ticket Agents* will hold its next half-yearly meeting in New York, at 11 a. m., on Tuesday, Sept. 15.

Foreclosure Sales.

The *Austin & Northwestern* road was sold under foreclosure in Austin, Tex., June 3, and bought for \$150,000, by W. B. Ishman, of New York, as agent for the bondholders. The sale included the road only and not the equipment. The road is of 3-ft. gauge, and extends from Austin to Burnett, 60 miles.

Car Accountants' Association.

Mr. Frank M. Luce, Vice-President, has issued the following circular:

"It is the desire of the undersigned that the members of the Car Accountants' Association and their families, who intend to go to Minneapolis via Chicago, should rendezvous at the Grand Pacific Hotel, where special rates have been made. Free omnibuses furnished for the occasion, through the courtesy of Mr. Frank Parmelee, will leave the Grand Pacific Hotel for the Chicago & Northwestern Railway depot at 1:15 p. m., Sunday, June 21. Mr. Parmelee will also convey the members and the families from the Chicago & Northwestern Railway depot back to the Grand Pacific Hotel upon their return to Chicago, Sunday, June 28, at 8 a. m. There will be no demand made for tickets or money by the omnibus company between the Grand Pacific Hotel and the Chicago & Northwestern Railway depot, in either direction, when we go as a body. The inclosed tickets are intended to be used by our members when they come into or depart from Chicago by the various roads.

"The special train will leave Minneapolis, Saturday, June 27, at 9 a. m., arrive at St. Paul at 9:30 a. m., where the train will remain until 3 p. m. Between the hours of 9:30 a. m. and 1 p. m. a carriage drive will be taken about St. Paul, and a dinner will be served at a hotel in St. Paul at 1 p. m. The complimentary pass issued by the Chicago & Northwestern Railway has two coupons attached. If any member should reach Chicago too late for the special train, the coupon, 'Chicago to Minneapolis,' will be honored upon any passenger train until June 24. If any member should be obliged to leave Minneapolis before or after Saturday, June 27, the coupon, 'Minneapolis to Chicago,' will be honored upon any passenger train until June 30."

American Society of Civil Engineers.

The following additional circular in relation to the annual convention has been issued by the Secretary:

The arrangements for the convention remain as stated in the previous circular. To secure the arrangements for transportation and for hotel accommodation members who intend to be present and have not already notified the Secretary should do so at once.

The sessions at Deer Park will be held as announced. The excursion to the Cheat River Grade, Kingwood Tunnel, Tray Run Viaduct, and other points on the Mountain Division of the Baltimore & Ohio Railroad, will probably occur on Thursday. There will be a banquet on Friday evening.

The Baltimore & Ohio Railroad Co., over its entire system, also including the Ohio & Mississippi Railroad from St. Louis and Louisville, will sell round-trip tickets for one fare going and returning. This will extend to Baltimore and Washington on the east, and Cincinnati, Chicago, St. Louis, Louisville, Pittsburgh, Columbus and Toledo on the west. The presentation of a certificate signed by the Secretary of the society will secure these tickets.

All members wishing to secure reduced transportation between New York or Philadelphia and Baltimore, en route to the convention, should notify the Secretary at the earliest possible moment, as a special order from the railroad for this purpose has to be secured through the Secretary for each person.

Upon the presentation of these orders at an office of the Pennsylvania Railroad in New York or Philadelphia tickets can be secured at round trip rates to Baltimore and return at 2 cents per mile.

Members on lines of New York Central and West Shore Railroads can avail themselves of the present low rate of 1 cent per mile to New York. From New York the above-mentioned orders can be secured if notification is sent to the secretary in time.

No arrangements have yet been secured east of New York. The following papers have been presented in addition to those previously announced:

Power Brakes for Freight Engines and Cars: William P. Shin.

Railroad Organization: Charles Latimer.

Cause and Prevention of the Decay of Building Stones: Thomas Egerton.

New Method of Making Conventional Signs on Topographical Maps: J. A. Ockerson.

Rainfall and Rain Gauges. Presentation of a few data: Robert Fletcher.

Specifications for Strength of Iron Bridges: Joseph M. Wilson.

English and American Railroads Compared: E. B. Dorsey.

Vibration of Bridges: S. W. Robinson.

A number of written discussions on other papers have been received.

The report of the Committee on the Preservation of Timber is ready, and will be presented and discussed.

ELECTIONS AND APPOINTMENTS.

American Society of Civil Engineers.—At the regular meeting June 3, the following candidates were elected members: Ellery Cushing Appleton, Canajoharie, N. Y.; Norman Wilder Eayrs, Newport, R. I.; John Douglas Fouquet, Fishkill, N. Y.; Francis Vinton Greene, Washington; Edlow Wingate Harrison, Jersey City, N. J.; Robert Woolston Hunt, Troy, N. Y.; William Cornell Jewett, Cincinnati, O.; Charles Roberts Johnson, New York; Jonathan Parker Snow, Woonsocket, R. I.; Denning Jarves Thayer, New York. As Junior, William Barnard Fuller, Glendale, Montana.

Brooks Locomotive Works.—The following circular is dated Dunkirk, N. Y., June 1: "Mr. J. H. Setchel, late General Master Mechanic of the Ohio & Mississippi Railway, has been appointed Superintendent of the Brooks Locomotive Works. In assuming the duties of such position he will, under the direction of the President, have charge and control of the mechanical operations of the company, and is also empowered to make and sign contracts."

Burlington, Cedar Rapids & Northern.—At the annual meeting in Cedar Rapids, Ia., May 26, the following directors were chosen for three years: J. Carscadden, C. D. Close, C. J. Ives, T. J. Potter. The board re-elected C. J.

Ives, President; Robert Williams, Vice-President; H. H. Hollister, Treasurer; S. S. Dorwart, Secretary and Assistant Treasurer.

Cairo, Vincennes & Chicago Line.—The present list of officers is as follows: Anthony J. Thomas and Charles E. Tracy, Receivers, New York; Samuel P. Wheeler, General Manager; N. S. Pennington, Traffic Manager; R. I. Farrington, Treasurer; R. Oliver, Assistant Auditor; A. G. Edwards, Car Accountant; with offices at Cairo, Ill.; J. M. Gill, Trainmaster; A. Vantuyl, Master Mechanic; H. Dunlap, Superintendent of Bridges; with offices at Mt. Carmel, Ill.

Camden & Atlantic.—The following circular from Vice-President W. J. Sewell is dated Camden, N. J., June 1: "Mr. John Whittaker has been appointed Assistant General Freight Agent, vice Walter Freeman, resigned. Appointed to date from April 1, 1885."

Champaign & Havana Line.—The officers of this line are as follows: Anthony J. Thomas, Receiver, Drexel Building, New York City; M. A. McDonald, General Manager; J. Caldwell, Superintendent; J. J. Fletcher, General Freight and Ticket Agent; H. F. Fletcher, Treasurer and Paymaster; J. W. Elliott, Auditor; M. A. McDonald, Purchasing Agent. Drafts for balances should be made on H. F. Fletcher, Treasurer. General offices, Urbana, Ill.

Chicago, Burlington & Quincy.—Mr. C. F. Resseguie is appointed Superintendent of the Illinois lines, with office in Galesburg, Ill., in place of J. D. Besler, promoted. Mr. Resseguie was for a long time on the Chicago & Northwestern, but has been on this road 9 years, most of the time as Chief Clerk to Vice-President T. J. Potter.

Chicago, Milwaukee & St. Paul.—At the annual meeting in Milwaukee, June 10, the following directors were chosen: Alexander Mitchell, John Plankinton, Milwaukee; Philip G. Armour, Chicago; Jason C. Easton, Mankato, Minn.; Selah Chamberlain, Cleveland, O.; Hugh T. Dickey, Peter Geddes, Joseph Millbank, Wm. Rockefeller, James Stillman, Abram R. Van Nest, Julius Wadsworth, James T. Woodward, New York. The only new director is Mr. Armour, who succeeds the late S. S. Merrill. The board re-elected Alexander Mitchell, President; Julius Wadsworth, First Vice-President; John B. Dumont, Second Vice-President; Roswell Miller, General Manager; P. M. Myers, Secretary; R. L. Jennings, Treasurer.

Chicago & Northwestern.—At the annual meeting in Chicago, June 4, the following directors were chosen for three years: S. F. Barger, Chauncey M. Depew, A. G. Dulman, Albert Keep, D. S. Kimball, Marvin L. Sykes; for two years to fill vacancies, John I. Blair, Wm. K. Vanderbilt; for one year to fill vacancy, Horace Williams.

The board elected Albert Keep, President; M. L. Sykes, Vice-President, Secretary and Treasurer; M. Huggett, Second Vice-President; J. B. Redfield, Assistant Secretary and Assistant Treasurer in Chicago; S. O. Howe, Assistant Secretary and Assistant Treasurer in New York; Albert Keep, W. L. Scott, A. J. Dulman, C. M. Depew, H. McK. Twombly, S. F. Barger and D. P. Kimball, Executive Committee.

Chicago & Northwestern Proprietary Lines.—At the annual meeting in Chicago, June 4, officers were chosen as below: *Dakota Central.*—President, Albert Keep; Vice-President, M. Huggett; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. *Fremont, Elkhorn & Missouri Valley.*—President, M. Huggett; Vice-President, Albert Keep; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman; Chief Engineer, J. E. Ainsworth. *Missouri Valley & Blair Railroad & Bridge Co.*—President, M. Huggett; Vice-President, P. E. Hall; Secretary, J. B. Redfield; Treasurer, D. F. Kimball. *Princeton & Western.*—President, Albert Keep; Vice-President, M. Huggett; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. *Sioux City & Pacific.*—President, M. Huggett; Vice-President, M. L. Sykes; Secretary, J. B. Redfield; Treasurer, M. M. Kirkman. *Winona & St. Peter.*—President, Albert Keep; Vice-President and Treasurer, M. L. Sykes; Secretary, J. B. Redfield.

Chicago, St. Paul, Minneapolis & Omaha.—At the annual meeting in Hudson, Wis., the old board was re-elected with one exception, James H. Howe, of Kenosha, Wis., being chosen to succeed A. H. Wilder, of St. Paul.

Cincinnati & Green River.—The officers of this road are: President, E. Zimmerman, Cincinnati; Vice-President, Lowe Emerson, Cincinnati; Secretary, R. A. Holden, Jr., Cincinnati; Treasurer, John J. Perkins, Cincinnati; Superintendent, George B. Harper, Yosemite, Ky.; General Freight and Passenger Agent, H. D. Emerson, Yosemite, Ky.; Master Mechanic, F. S. Biggs, Yosemite, Ky.

Cleveland, Lorain & Wheeling.—Mr. Charles H. Warburton has been appointed Master Mechanic of this road.

Des Moines & Fort Dodge.—At the annual meeting in New York, June 4, the following directors were chosen for three years: R. G. Agnew, H. H. Hollister, David Stewart. Mr. Hollister is a new director, succeeding John L. Ludlum.

Grand Trunk.—Mr. Thomas Tandy is appointed Through Traffic General Freight Agent, Western District, and his office is removed from Hamilton to Detroit. He will have charge of the company's through traffic, via the Detroit, Port Huron and Niagara frontiers (other than that dealt with by the Chicago & Grand Trunk executive). Mr. Tandy will also have charge of the company's arrangements for their main line, on all lines (except those owned or operated by the company) west of the Detroit & St. Clair Rivers. Mr. John Earls will have charge of freight business east of the Detroit and St. Clair Rivers and west of Toronto, including the western freight to and from that city, and the local business of the district with the United States lines. His headquarters will be at Toronto. Mr. Arthur White, headquarters Toronto, is placed in charge of the freight business between Montreal and Toronto, including the Midland system, the traffic from and for Toronto and the east, and the traffic for from Montreal and the west. Mr. A. Burns takes charge of the freight business of the Montreal & Champlain, the Champlain Junction, the Lachine and the main lines east of Montreal. His headquarters will be at Montreal. The official title of Mr. Earls, Mr. White, and Mr. Burns will be District General Freight Agent.

Green Bay, Winona & St. Paul.—The Farmers' Loan & Trust Co., of New York, being in possession of the road as trustee, as heretofore noted, Gavin Campbell is Agent for Trustee, General Manager and Purchasing Agent; S. W. Champion, General Freight and Passenger Agent; F. W. Froemke, Cashier. Ticket reports should be enclosed to W. C. Wheelock, Ticket Auditor, Green Bay, Wis.

Louisiana & Missouri River.—This company, whose road is leased to the Chicago & Alton, has chosen directors as follows: Wm. H. Bliss, John J. Mitchell, R. P. Tansey, St. Louis; John Crerer, Chicago; Charles P. Horton, Henry Cabot Lodge, Arthur R. Silsbee, Boston.

Maine Central.—Mr. W. S. Eaton is now General Freight Agent, with office in Portland, Me. He was formerly General Western Agent of the road.

Milwaukee, Lake Shore & Western.—At the annual meeting in Milwaukee, Wis., June 10, the following directors were re-elected for three years: W. N. Hinman, Daniel Parrish, Charles G. Ramsey, F. W. Rhinelander. The board re-elected F. W. Rhinelander, President; Joseph R. Bush, Vice-President.

Missouri, Iowa & Nebraska.—Mr. Thomas Thacher, of New York, has been appointed Receiver of this road, heretofore part of the Wabash system.

Mitchell, Orleans, Paoli, West Baden & French Lick.—The directors of this new company are: George W. Burton, Mitchell, Ind.; J. W. Kennedy, Seymour, Ind.; George W. Campbell, Hiram E. Wells, French Lick, Ind.; John C. Albert, James M. Andrews, W. F. Osborn, B. D. Riley, Andrew J. Rhodes, John R. Simpson, Amos Stout, James F. Stucker, Paoli, Indiana.

New Brunswick.—General Manager F. W. Cram has issued a circular announcing that the road will hereafter be operated in two divisions. The Northern Division will include that portion north from McAdam Junction and from Newburg Junction to Gibson. Mr. John Stewart has been appointed Superintendent of this division, with headquarters at Woodstock. The Southern Division includes the section from St. John to Vanceboro, the Fredericks Branch and the line from McAdam Junction to St. Stephen and St. Andrews. This division has been placed under H. D. McLeod as Superintendent.

New York, Chicago & St. Louis.—Mr. C. D. Gorham has been appointed Superintendent of the Western Division, with office in Fort Wayne, Ind., in place of A. H. Evans, resigned. Mr. Gorham has served as Division Superintendent on the Pittsburgh, Fort Wayne & Chicago, and the Chicago & Northwestern, and more recently as General Superintendent of the New York, West Shore & Buffalo.

New York, Texas & Mexican.—Mr. C. S. Wells is appointed Auditor, with office in Victoria, Texas, in place of M. Sichel, resigned.

Pennsylvania, Slatington & New England.—Mr. Wm. V. McCracken has been appointed Receiver of this unfinished road.

Peterboro & Hillsboro.—At the annual meeting, May 29, the following directors were chosen: John G. Campbell, Hillsboro Bridge, N. H.; Wyman Pattee, Enfield, N. H.; Alvah W. Sullaway, Franklin, N. H.; George E. Todd, Concord N. H.; Augustus E. Scott, Lexington, Mass.; Josiah H. Benton, Jr., G. A. Kettell, Boston.

St. Louis & Kansas City Air Line.—This company was organized at a meeting held in Columbia, Mo., June 3, when the following directors were chosen: E. M. Edwards, Wm. B. Steele, La Fayette County, Mo.; J. H. Cordell, A. T. Palmer, Saline County, Mo.; J. D. Tolson, P. B. Williams, Howard County, Mo.; Oden Guitar, J. H. Waugh, Boone County, Mo.; T. B. Harris, D. M. Tucker, Callaway County, Mo.; E. M. Hughes, Montgomery County, Mo.; W. B. Hale, Warren County, Mo.; Mitchell Castle, St. Charles, Mo.

St. Louis, Salem & Little Rock.—At the annual meeting in Salem, Mo., June 2, the following directors were chosen: H. A. Crawford, E. S. Foote, R. S. Hays, H. M. Hoxie, St. Louis; W. L. Scott, Erie, Pa.; A. L. Crawford, New Castle, Pa.; Jay Gould, New York.

Scioto Valley.—The following circulars from Receiver Robinson are dated Columbus, O., May 29:

"Having been appointed Receiver of the Scioto Valley Railway Co., I hereby assume the charge and control of all property of said company. All heads of departments, agents and employés will continue in their respective positions until otherwise ordered, and will hereafter report to J. Robinson, Receiver."

"To connecting lines: Please make freight, ticket, express and mileage reports from May 1 to 29, inclusive, to the Scioto Valley Railway Co., and from May 30 to 31, inclusive, to the Receiver. Drafts and remittances for the above should be made separately to J. Robinson, Receiver."

Southern Pacific Co.—Mr. C. A. Grow having resigned, to take effect June 1, Mr. N. H. Foster is appointed Auditor of the Motive Power and Machinery Department of the Pacific system of this company.

Sweedesboro.—This company (whose road is leased to the West Jersey Co.) has elected Samuel Black, President; R. L. Ashurst, J. H. Bradway, Henry C. Clark, D. B. Gill, Matthew Gill, Wm. Knight, Edwin Stokes, Isaac H. Vaneman, directors; D. B. Gill, Secretary and Treasurer.

Sylvania.—The officers of this company are as follows: D. C. Bacon, President; R. J. Davant, Treasurer, Savannah, Ga.; John C. Dell, Vice-President; E. J. Thomas, Superintendent; J. F. Lovette, Secretary and Assistant Treasurer, Sylvania, Ga.

Vermont & Massachusetts.—At the annual meeting in Boston, June 3, the following directors were chosen: Edward L. Davis, James A. Dupee, George F. Fay, Francis Goodhue, Wm. H. Hill, Daniel S. Richardson, Thornton K. Ware. The road is leased to the Fitchburg Company.

Washington, Ohio & Western.—At the annual meeting recently the following were chosen: President, Archer N. Martin; directors, R. T. Barton, G. H. Bates, U. L. Boyce, A. G. Campbell, H. D. Cooke, F. M. Colston, H. S. Cummings, C. H. Clark, H. Heaton, C. E. Kimball, W. G. Oakman, T. C. Woodbury.

Wichita & Western.—Mr. F. M. Hill is appointed Superintendent, with office in Wichita, Kansas.

Wisconsin Central.—Mr. D. G. Wegg, for some time past Assistant to the Vice-President, has been appointed General Solicitor of this company.

PERSONAL.

—Mr. Eli Culverhouse has resigned his position as General Manager of the Kansas & Gulf Short Line, to take effect July 1 next.

—Mr. A. H. Evans has resigned his position as Superintendent of the Western Division of the New York, Chicago & St. Louis road.

—Mr. D. W. Campbell has resigned his office as Assistant State Engineer of Colorado, to accept a position in the Bridge Department of the Union Pacific road.

—Mr. Luther Wright, for many years a banker in Oswego, N. Y., died in that city June 9, aged 86 years. He was one of the builders of the Oswego & Syracuse road and was interested in other enterprises.

—Mr. F. J. R. Carulla, F. C. S., late General Manager of the Landore Siemens Steel Works, is in this country, making a tour of inspection of the railroads on behalf of the Patent Shaft & Axletree Co., makers of wheels, axles, etc., at Wednesbury, England.

—Mr. Charles G. Gay, Auditor of the Marquette, Houghton & Ontonagon Co., disappeared from his home in Marquette, Mich., May 25, and three days later his body was found in the woods near that city, he having taken his own life during a temporary fit of insanity.

—It is reported that Mr. A. J. Cassatt, formerly Vice-President of the Pennsylvania Railroad Co., has been offered the position of Receiver of the New York, West Shore & Buffalo road. It is stated that Mr. Cassatt has not yet accepted or declined the position, although he has gone so far as to make certain conditions upon which his acceptance will depend.

—Mr. Thomas C. Purdy has resigned his position as Vice-President and General Manager of the Mexican National-Railway. Mr. Purdy has had charge of the company's affairs in Mexico through a very trying period of its existence, and has conducted them with ability and success. He leaves the road in very much better condition than he found it, so that his successor's work will be comparatively easy.

—Mr. George H. Frick died in Baltimore, June 9, aged 58 years. He was for a number of years a merchant in that city, but later gave up his time chiefly to street railroads and telegraph enterprises. He was for a little over a year Manager of the Baltimore & Ohio Telegraph, and was also for a time Manager of the Baltimore & Ohio Express, but resigned his position with that company to resume the management of the street railroads in Baltimore.

—In Fayetteville, N. C., June 5, the employés of the Cape Fear & Yadkin Valley road assembled at the general offices and presented Capt. James S. Morrison, late Chief Engineer and General Superintendent, with a handsome silver tea set beautifully engraved. The presentation speech was made by E. T. B. Glenn, Chief Clerk and Car Accountant, expressing to Capt. Morrison the high respect that the employés had for him and their appreciation of his kindness to them while he was in office. To this Capt. Morrison replied with much feeling, accepting the gift and assuring the employés that wherever he went his heart would always be full of gratitude to them.

—Mr. Mark T. Seymour died May 30, at his residence, in New York, age 65 years. As a contractor, especially for the construction of wooden railway bridges, Mr. Seymour was known in nearly every state of the Union. He was born at Stillwater, N. Y. He had a contract for bridges on the Erie road, which was his first work of importance; the old Portage Bridge, the highest wooden bridge in the world, was built by him. In 1861 Mr. Seymour had several important contracts in Virginia, which the war compelled him to give up. Later he had large contracts for bridges on the Union Pacific and the Massachusetts Central roads, beside some important street contracts in New York.

TRAFFIC AND EARNINGS.

Coal.

Anthracite coal tonnages for the five months to May 30, as given by the weekly statements of the companies, have been as follows for eight years past:

	Tons.		Tons.
1885	10,413,572	1881	9,784,879
1884	10,882,670	1880	8,328,549
1883	11,682,767	1879	9,299,850
1882	9,577,669	1878	5,325,681

The decrease this year from last is 469,098 tons, or 4.3 per cent.; from 1883 it is 1,269,195 tons, or 10.8 per cent. The tonnage this year is still larger than that reported for any year before 1883. Although prices are low, the trade may be better this year than had been expected.

Buminous tonnages reported for the five months to May 30 are:

	1885.	1884.	Inc. or Dec.	P. c.
Cumberland, all lines	1,061,980	1,027,514	L. 34,475	3.3
Huntingdon & Broad Top	73,027	81,237	D. 7,610	9.4
Barclay R. R. & Coal Co.	102,698	143,944	D. 40,946	28.4
Pennsylvania R. R.:				
Clearfield	1,273,068	1,261,136	L. 11,932	0.9
John and Westmoreld	301,431	485,281	D. 93,830	19.3
Minor districts	646,359	617,207	L. 29,152	4.7
Total	3,540,472	3,616,310	D. 66,847	1.8

The greatest decrease here shown is in the gas coals of the Westmoreland District. Part of this is due to a temporary stoppage of production by a strike of the miners.

Coke tonnages reported for the five months to May 30 are:

	1885.	1884.	Inc. or Dec.	P. c.
Southwest Penna. R. R.	789,615	931,625	D. 141,010	15.1
Other districts, Pa. R. R.	233,470	207,298	L. 26,172	12.6
Connelsville, via Pa. R. R.	32,644	149,497	D. 116,853	78.0

Total coke 1,055,729 1,287,420 D. 231,691 18.0

The decrease in coke tonnage has continued steadily through the year.

The anthracite coal tonnage of the Shamokin Division, Northern Central road, for the five months was 369,689; last year, 389,835; decrease, 20,146 tons, or 5.2 per cent.

San Francisco coal receipts in May were 76,932 tons; for five months, 382,811; last year, 337,715; increase, 14,949 tons, or 1.3 per cent. The chief point of note this year has been unusually large receipts of Australian coal.

Actual tonnage passing over the Pennsylvania & New York road for the six months of its fiscal year from Dec. 1 to May 30 was :

	1885.	1884.	Dec.	P. c.
Anthracite	552,342	593,485	41,143	6.9
Bituminous	124,664	173,811	49,147	28.2

Total 677,006 767,296 90,290 11.8

The larger part of the anthracite is received from the Lehigh Valley road, of which this line is an extension.

Cumberland coal shipments for the week ending June 6 were 55,284 tons. Total to June 6 this year, 1,117,274; last year, 1,102,325; increase, 14,949 tons, or 1.3 per cent.

Pennsylvania Railroad coal tonnage for the week ending June 6 was:

	Coal.	Coke.	Total.	1884.
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(from Sept. 1) to June 5 is estimated at 5,588,335 bales, against 5,613,299 last year, 6,864,241 in 1882-83, and 5,279,634 in 1881-82.

Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

Five months ending May 31:

	1885.	1884.	Inc. or Dec.	P.c.
Boston, Hoosac	\$171,583	\$158,717	L. \$12,866	8.1
Tun. & W.	1,039,466	1,072,295	L. 111,171	10.4
Bur., C. R. & No.	2,593,378	1,547,383	L. 1,045,995	67.6
Canadian Pacific....	480,415	572,240	D. 91,822	16.1
Central Iowa....	3,043,585	3,197,787	D. 154,202	4.8
Chi. & Alton....	8,727,654	8,672,452	L. 55,202	0.6
Chi., St. P., Min. & Omaha....	2,038,932	2,227,035	D. 188,103	8.4
Chi. & W. Mich.	474,000	634,814	D. 159,914	25.2
Det., Lan. & No.	445,189	569,400	D. 124,211	21.8
Flint & Pere M.	772,984	1,033,597	D. 260,613	25.2
Illinois Central....	4,371,749	4,056,520	L. 315,229	7.8
Iowa Lines....	604,162	670,350	D. 66,188	9.9
Long Island....	858,182	845,800	L. 39,382	4.6
Louisv. & Nashv.	5,788,357	5,523,886	L. 264,471	4.8
Mil., L. S. & W.	449,248	444,956	L. 4,292	0.9
Mil. & Northern....	225,783	207,655	L. 18,128	8.7
Mobile & Ohio....	810,078	836,350	D. 25,672	3.1
Northern Pacific....	3,588,226	4,842,263	D. 1,254,037	25.9
Ohio Southern....	174,899	178,480	D. 3,581	2.0
Peoria, Dec. & E.	277,281	312,588	D. 35,307	11.3
Roch. & Pitts.	440,571	387,528	L. 53,043	13.6
St. P. & Duluth....	334,589	382,941	D. 18,352	4.8

Four months ending April 30:

	1885.	1884.	Inc. or Dec.	P.c.
Ches., O. & S. W.	\$475,476	\$410,989	L. \$64,487	15.7
Net earnings....	125,804	53,512	L. 72,292	135.0
Chi., Bur. & Q.	8,298,579	7,557,712	L. 740,867	9.8
Net earnings....	3,612,619	3,323,600	L. 289,019	8.7
Cin., Ind., St. L. & Chi.	778,173	691,974	L. 86,199	12.4
Net earnings....	307,046	278,93	L. 28,956	10.4
L. Rock & Ft. S.	181,419	168,852	L. 12,567	7.4
Lt. Rock, M. R. & Tex.	108,299	107,369	L. 930	0.9
Mobile & Ohio....	685,539	693,576	D. 8,017	1.2
Net earnings....	135,830	182,081	D. 43,251	25.4
N. Y., L. Erie & Western....	5,723,601	6,286,580	D. 562,970	9.0
Net earnings....	1,039,615	929,087	L. 110,528	10.8
Union Pacific....	7,701,607	7,154,408	L. 47,141	0.7
Net earnings....	2,242,113	1,981,954	L. 263,150	13.1
Utah Central....	236,527	303,174	D. 66,647	21.8
Net earnings....	88,955	99,760	D. 10,805	10.8

Three months ending March 30:

	1885.	1884.	Inc. or Dec.	P.c.
California South.	\$28,694	.....	.....	.....
<i>Month of March:</i>	.....	.....	.....	.....
California South.	\$10,117	.....	.....	.....
So. Pacific, Cal.	258,939	.....	.....	.....
So. Pacific, N. M.	63,021	.....	.....	.....
So. Pacific, Ariz.	146,165	.....	.....	.....
<i>Month of April:</i>	.....	.....	.....	.....
Ches., O. & S. W.	\$110,244	\$109,760	L. \$9,484	8.6
Net earnings....	32,786	17,531	L. 15,255	87.2
Chi., Bur. & Q.	2,065,070	1,832,451	L. 232,619	12.7
Net earnings....	869,461	645,203	L. 224,258	34.7
Cin., Ind., St. L. & Chi.	180,930	137,821	D. 16,822	8.4
Net earnings....	54,021	79,974	D. 25,958	32.4
Ft. Worth & D.	31,490	42,558	D. 11,068	26.0
Net earnings....	12,575	22,094	D. 9,519	43.3
L. Rock & Ft. S.	36,960	41,110	D. 4,150	10.1
L. R., M. R. & T.	16,989	23,127	D. 6,138	26.7
Maine Central....	233,020	230,026	L. 2,994	1.3
Net earnings....	97,420	91,46	L. 5,994	6.6
Mobile & Ohio....	128,428	167,790	D. 39,362	23.4
Net earnings....	*8,062	36,154	D. 44,216	.....
N. Y., L. Erie & Western....	1,469,012	1,727,434	D. 258,422	15.0
Net earnings....	269,013	392,465	D. 123,452	31.5
Ohio & Miss.	388,964	306,476	L. 17,512	5.7
Net earnings....	67,323	43,225	L. 24,098	56.0
Union Pacific....	1,987,191	2,116,519	D. 129,328	6.1
Net earnings....	633,800	868,357	D. 214,467	24.7
Utah Central....	52,755	70,838	D. 18,103	25.8
Net earnings....	20,330	17,461	L. 2,869	16.8

Month of May:

	1885.	1884.	Inc. or Dec.	P.c.
Boston, Hoosac	\$95,671	\$91,613	L. \$4,058	12.5
Bur., C. R. & No.	239,384	221,572	L. 17,812	8.0
Canadian Pac.	586,813	424,539	L. 162,254	38.2
Central Iowa....	88,502	117,840	D. 29,278	24.8
Chi. & Alton....	588,533	633,661	D. 65,108	9.9
Chi., St. P., Min. & Omaha....	1,960,871	2,076,829	D. 115,958	5.6
Chi. & W. Mich.	484,907	513,349	D. 28,442	5.5
Det., Lan. & No.	103,420	137,009	D. 33,589	24.6
Flint & Pere M.	91,904	132,903	D. 41,089	30.9
Illinois Central....	172,472	220,490	D. 48,018	21.8
Illinois Central....	831,014	788,810	L. 42,331	5.3
Iowa Lines....	133,796	134,333	D. 537	0.4
Long Island....	218,273	220,535	D. 2,262	1.0
Louisv. & Nashv.	1,095,187	1,156,169	D. 60,922	5.7
Mil., L. S. & W.	94,980	95,634	D. 654	0.7
Mil. & Northern....	45,248	45,437	D. 189	0.4
Mobil. & Ohio....	125,119	142,774	D. 17,655	12.3
Northern Pacific....	865,403	1,287,865	D. 392,402	30.5
Ohio Southern....	31,845	28,988	L. 2,857	9.9
Peoria, Dec. & E.	50,271	57,347	D. 8,078	13.9
Roch. & Pitts.	69,234	84,756	L. 14,478	17.1
St. P. & Duluth....	87,198	100,723	D. 13,525	13.5
<i>First week in June:</i>	.....	.....	.....	.....
Chi., Mil. & St. P.	\$437,000	\$429,347	L. \$7,653	1.8
Long Island....	60,554	67,248	L. 2,306	3.4
St. L. & San Fran	67,000	78,400	D. 11,400	14.5

*Deficit.

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

Trunk Line Presidents' Meeting.

A meeting of the trunk line presidents was held at the Commissioner's office in New York, June 9. The Lackawanna and West Shore roads were not represented. President Newell, of the Lake Shore, was present and reported the action of the Chicago roads in their attempt to reconstruct the east-bound freight pool. The plan proposed, which was not made public, was approved by the meeting. It is understood that there was a general discussion of the situation with a view to some arrangement for the advancement of rates, but no action was taken, and the meeting finally adjourned until June 12.

Passenger Meeting.

The passenger department of the Joint Executive Committee met in New York, June 9, when there was a general discussion as to the principles and method of arbitration to be adopted in the formation of the new pool. No action was taken, however, and the meeting is to continue probably for several days. No action was taken on the second day also.

Passenger Rates.

At a meeting of general passenger agents held in Chicago last week, it was resolved that the Western lines should take no cognizance of the cut rates in selling through tickets from Western points through Chicago to New York and other Eastern cities. It is understood that several of the lines have, in consequence of this action, instructed their agents to inform purchasers of tickets that, while they cannot under the agreement, sell through tickets to New York at less than schedule rates, lower rates can be obtained by purchasing the tickets in Chicago.

A different action was taken by the Chicago, St. Louis &

Missouri River Association at a meeting held in Chicago, June 9, when it was resolved that the through rates from Omaha and other Missouri River points to New York should be made in accordance with the cut rates from Chicago to New York. The rates from Omaha, for instance, being made in accordance with the present nominal rate of \$17 first and \$14 second-class from Chicago to New York.

New Passenger Lines.

Arrangements have been made for the opening of a new passenger line between St. Louis and St. Paul, by way of the St. Louis, Keokuk & Northwestern, the Burlington, Cedar Rapids & Northern and the Chicago, Milwaukee & St. Paul roads. Through passenger and sleeping cars will be run by this route.

East-Bound Freight Rates.

Continued cutting of freight rates is reported from Chicago, and the papers of that city state that grain has been taken at 4 and 5 cents below the nominal rate of 15 cents per 100 lbs. to New York, and that several large shipments have been made on the 11-cent rate.

RAILROAD LAW.

The State as a Stockholder—Legislative Authority Over Reorganization.

In the case of Marshall against the Western North Carolina Co., the North Carolina Supreme Court holds as follows:

1. Where the state is a stockholder in a railroad company, it is bound by the provisions of the charter in the same manner as an individual. It has no advantage as a stockholder on account of its sovereignty, for by becoming such it lays aside its character as sovereign and places itself on a footing of equality with the individual stockholders.

2. The property of a corporation belongs to it, and not to the stockholders. They only have an interest in such property through their relation to the company, and in this respect the state is like any other stockholder. So, where an act of the General Assembly provided for a sale of the state's interest in a railroad company in which the state was a stockholder, it was held to be only a sale of the stock.

3. Whether such sale would vest in the purchasers of the state's stock all the powers and privileges which the charter of the company had conferred on the state; *quarea?*

4. An act of the Legislature which provides that, in a certain contingency, the stockholders of an existing corporation shall reorganize as a new corporation, which changes the amount of the capital stock, and provides for the stockholders in the existing corporation by reserving a certain amount of the stock for them in the corporation to be formed, creates a new corporation, and is not an amendment to the charter of the one already in existence. In such case it is immaterial that the new corporation is called by the same name as the old one.

5. Whether the Legislature has power to compel the stockholders in the old corporation to re-organize as a new company; but if they do so voluntarily, the new corporation is regularly and legally formed.

6. In such case, the organization of a new corporation at once dissolves the old one.

7. If there are creditors of the dissolved corporation under these circumstances, they may cause the property of the defunct corporation to be applied to their debts by means of a receiver.

OLD AND NEW ROADS.

Alexandria & Fredericksburg.—Surveys are being made for a branch from this road at West Alexandria, Va., along the Potomac to Mount Vernon, a distance of 10 miles. It is said that this branch will be built during the present season, the object, of course, being to secure the large excursion travel to Mount Vernon which now goes by the river steamboats.

Atlantic & North Carolina.—At the approaching annual meeting of this company the

larly situated, from the extremely low rates now prevailing on all through freights, and on some local business also.

Cincinnati Northern.—At a meeting of the bondholders in Cincinnati, June 4, five trustees were selected to purchase the property at the coming foreclosure sale. The trustees are instructed to organize a new corporation and to convey the property to it as soon as the sale is confirmed. All bondholders who sign the agreement before the sale will join in forming the new corporation.

Cleveland, Indiana & St. Louis.—The manager, who is operating this road for the purchasers at the foreclosure sale, has let contracts for the extension of the road from its present terminus at Noblesville, Ind., west to Lebanon, about 25 miles. The people of the towns along the line have voted \$80,000 in aid of this extension. The manager has secured new rolling stock sufficient to operate the road.

Denver & Rio Grande.—The Philadelphia *Press* says: "The foreign bondholders of the Denver & Rio Grande Railway Co. have issued a modified plan of reorganization under foreclosure, which differs in a few respects from the originally formulated scheme. They propose to convert of the old issues \$6,382,500 of first mortgage 7 per cent., the overdue coupons to be paid in cash, into the issues of the new company; also \$19,740,500 of first consolidated 7 per cent bonds into new consolidated bonds bearing 4 per cent interest, commencing with July 1, 1886. The difference in interest and unpaid coupons up to July, 1886, inclusive, to be compensated by the issue of \$700 of new 5 per cent preferred stock, each \$1,000 old 7 per cent consolidated bond equivalent to a \$1,000 new 4 per cent bond and \$700 of 5 per cent preferred stock."

"The plan also provides for the conversion of the \$2,500,000 general mortgage bonds as follows: 90 per cent in new 5 per cent preferred stock, holders paying 2½ per cent cash assessment, or 80 per cent, without assessment; for unpaid coupons, 80 per cent in the preferred stock, not exceeding \$10 in all. The outstanding equipment bonds, amounting to \$3,600,000, are to receive new 4 per cent consolidated bonds dollar for dollar, the interest payable in cash up to July, 1886. In addition, the certificates bearing 6 per cent interest are to receive \$400 in the new 5 per cent preferred stock, and the 7 per cent \$600. If the equipment bondholders do not accept these terms an amount not exceeding \$3,500,000 of 5 per cent bonds prior in lien to new consolidated bonds is to be created so far as is necessary for the purchase of equipment. The \$38,000,000 of capital stock is to be exchanged for new common stock, and pay an assessment of \$8 per share, receiving in return \$16 in new 5 per cent preferred.

"The new company is to issue \$35,000,000 of first mortgage 4 per cent consolidated gold bonds, to run 50 years from January 1, 1886. Of these bonds \$6,382,500 are to be set aside against the outstanding first mortgage bonds of the old company, with power to issue these bonds at a higher rate of interest, but not to exceed 7 per cent. To the holders of outstanding consolidated bonds \$19,740,500 of the new issue are to be given: \$3,600,000 to the equipment holders, and \$5,277,000 to be retained in the treasury for future capital requirements. Then \$24,343,950 of 5 per cent, preferred stock, non-cumulative with voting power, is to be used as follows: \$13,818,350 to holders of old consolidated bonds, against reduction of interest and overdue coupons to and including July, 1886; \$2,500,000 to holders of general mortgage bonds; \$280,000 to the holders of \$700,000 of the 6 per cent equipment bonds, against the reduction of interest; \$1,665,600 to the holders of \$2,776,000 of the 7 per cent bonds, and \$6,080,000 to the holders of the common stock, against the assessment. In addition to these amounts, \$38,000,000 of common stock, with voting power, is to be issued dollar for dollar.

"The plan further provides that the first board of the new company is to be nominated to the extent of two-thirds by the consolidated bondholders and the preferred stockholders, the common stock naming the remaining third. At the annual elections for the four succeeding years, this arrangement is to be carried out, after which date, or in the event of the full payment of interest on the preferred stock having been made for two consecutive years out of net earnings, the control of the road is to pass into the hands of the stockholders of both classes. The confidential circular is signed by Howard Gilfillan and James Steuart, and is dated No. 2, Suffolk Lane, London, E. C., May 12, 1885."

Ellsworth, McPherson, Newton & Southeastern.—Work is progressing well on this new line, and its completion from Eldorado, Kan., northwest to Newton, about 35 miles, is expected next month.

Fort Worth & Denver City.—This company's statement for April and the six months of the fiscal year from Nov. 1 to April 30 is as follows:

	April	Half-year	
Earnings	\$31,490	\$42,558	1884-85.
Expenses	18,915	20,464	\$173,223 \$204,787
Net earnings	\$12,575	\$22,604	1883-84.
Per cent. of exps.	60.9	47.9	118,790

For the half-year the gross earnings decreased \$31,564, or 15.4 per cent., and the expenses \$24,727, or 20.8 per cent., leaving a decrease of \$6,837, or 8.0 per cent., in net earnings.

Fort Worth & Rio Grande.—This company has filed articles of incorporation in Texas to build a railroad from Fort Worth to Brownwood, a distance of 127 miles. A branch 40 miles long to Coleman is also proposed.

Fort Worth, Waxahachie & Sabine Pass.—This company is organized to build a railroad from Fort Worth, Tex., southeast to Waxahachie, where connection will be made with a branch of the Houston & Texas Central road. The distance is about 45 miles, and the company receives a considerable subsidy from Fort Worth, in return for which it promises to complete the road this year.

Hanover Junction, Hanover & Gettysburg.—This company has completed the laying of tracks on an extension of its road running from Gettysburg, Pa., westward 8 miles to Crone's. The new line passes through a tract of fine farming country and reaches a large body of timber land from which considerable business is expected. It is built on the grade of what is known as the old "Tapeworm" road, which was graded by the state of Pennsylvania a number of years ago.

Kentucky Central.—The strike of the freight trainmen on this road ended last week by the virtual surrender of the strikers, who have accepted the 10 per cent. reduction in wages ordered by the company. The strikers failed to secure the cooperation of the engineers, a committee of the latter, after conference with the managers of the road, having reported that, in the present condition of business, the reduction was unavoidable. Most of the striking trainmen returned to work, although a few concluded to leave rather than submit, and freight traffic over the road has been fully resumed.

Lake Erie & Western.—In the United States Circuit Court in Toledo, June 4, the sale of this road was ordered to satisfy a judgment of \$330,000 in favor of George J. McGourley. The sale is to take place within 60 days, and the road is to be sold subject to the several mortgages existing; that is, the purchaser under this sale will own simply the

stockholders' interest in the line and the claims of the bondholders will be unimpaired.

Little Rock & Fort Smith.—The month of April the land department of this road sold 2,060 acres for \$7,297. The sales to the end of April were 11,628 acres, for \$41,853, an increase of 11 per cent. over last year.

Louisville & Nashville.—The connection between the two portions of this company's line from Nashville to St. Louis, which has hitherto depended on the steamboat transfer across the Ohio River, between Evansville, Ind., and Henderson, Ky., has been completed by the construction of the bridge over the Ohio at Henderson and the building of the railroad along the Indiana side of the river from Evansville to the bridge. The last span of the bridge was completed June 4, and the new connection will be ready for use by July 1, when a formal opening will take place. The completion of the rail connection and the abandonment of the boat transfer will considerably shorten the time between St. Louis and Nashville, and after the formal opening an entire new schedule of trains will be arranged. The construction of this bridge was projected by the St. Louis & Southeastern Co., which built the line from St. Louis to Evansville, but nothing practical was done until the road passed into possession of the Louisville & Nashville Co. The new line from Evansville to Henderson, including the bridge, is about 12 miles long, and the principal cost has been the construction of the bridge.

Maine Central.—This company makes the following statement for April and the seven months of the fiscal year from Oct. 1 to April 30:

	April	Seven months
Earnings	1885.	1884.
Expenses	\$233,020	\$230,026
	135,600	138,600
Net earnings	\$97,420	\$91,426
Interest and rentals		
Deficit		

The seven months show a decrease in gross earnings of \$3,333, or 0.2 per cent., with a decrease in expenses of \$27,390, or 2.6 per cent., and a resulting gain in net earnings of \$24,057, or 5.0 per cent. The first half of the fiscal year generally shows a deficit, which is more than made up by the increased business of the summer and fall.

Marietta Mineral.—This road is now open for business from Marietta, O., to Big Run, a distance of 25 miles. The road is built on the old line of the Marietta & Cincinnati, which was abandoned several years ago, when the new short line was completed.

Memphis & Charleston.—At Memphis, Tenn., June 4, this company filed a suit in chancery to break its lease to the East Tennessee, Virginia & Georgia. The complainant avers that the placing of its property under the control and management of a receiver would, in fact, be an assignment or transfer of the lease, which is unlawful. The defendant company has utterly failed to take up the obligations of the Memphis & Charleston, according to the contract. When the coupons due July 1, 1884, and Jan. 1, 1885, fell due, the defendant failed to take them up and the complainant did so by means of private indorsement with parties in New York, to prevent foreclosure. On May 2 last the complainant made a formal demand of the defendant for the return of all its properties, which was refused. The complainant prays that a receiver be appointed, and that said lease and amendment be declared null and void *ab initio*.

Mexican National.—Dispatches from Mexico state that President Palmer, who is now in that country, has devised a plan for the completion of the road. His plan provides for the surrender by the present first-mortgage bondholders of their prior lien on the road and the issue of a new first mortgage for \$10,000,000, the bonds to be offered to capitalists in Mexico. It is claimed that Mr. Palmer has assurances that they will be taken in that country, and that the whole matter depends upon the action of the present bondholders. A good many of these, however, object to surrendering their present lien, and it may be difficult to secure the necessary consent.

Michigan Central.—Notice is given that the \$1,277,000 Jackson, Lansing & Saginaw first-mortgage bonds maturing July 1 next will be paid on and after that date at the office of the Farmers' Loan & Trust Co. in New York. The coupons of that date will be paid at the office of the Union Trust Co. in New York.

Midland North Carolina.—This road has been sold to the Wilmington & Weldon Co. It is understood that the price paid was \$66,000, which is something less than the cost of the rails. The road was commenced several years ago, and was intended to run from Goldsboro, N. C., to Smithfield, 22 miles, the line being nearly parallel with that of the North Carolina Railroad.

Minneapolis, Lyndale & Minnetonka.—A petition asking for the foreclosure of the mortgage and the appointment of a receiver has been filed in the United States Circuit Court in St. Paul, Minn., by the Farmers' Loan & Trust Co., of New York, trustee. This road is of 3 ft. gauge, and runs from Minneapolis to Excelsior, on Lake Minnetonka, 20 miles, with a branch 6 miles long. The funded debt is \$250,000, and the interest is in default since October last.

Mobile & Ohio.—This company makes the following statement for April and the ten months of its fiscal year from July 1 to April 30:

	April	Ten months
Earnings	1885.	1884.
Expenses	\$128,428	\$167,790
	136,490	131,636
Net earnings	*\$8,062	\$36,154
Per cent. of exps	106.3	78.4

* Deficit.

For the ten months the gross earnings decreased \$116,520, or 5.9 per cent., while the expenses increased \$64,402, or 5.0 per cent., the result being a decrease of \$180,922, or 25.7 per cent., in net earnings.

Montreal, Portland & Boston.—The court in Montreal has decided that the recent sale of this stock is not valid, for the reason that the stock was sold in a lump to satisfy a judgment, whereas it should have been sold share by share, and the sale stopped when a sufficient amount had been secured to pay the claims, the stock left to remain the property of the original owner, Mr. Barlow. An appeal from this decision has been taken to the full bench of the court.

New York, Chicago & St. Louis.—A plan for the reorganization of this road has been prepared which provides for the issue of new 4 per cent. in place of the present 6 per cent. mortgage bonds, the holders to receive in compensation for the reduction of interest income bonds to the amount of 25 per cent. of their holdings. The new mortgage is to include the equipment bonds also, and preferred stock to be given for the second-mortgage bonds. Under this plan the Lake Shore Co. will still retain its controlling interest in the

stock. The bondholders' committee has notified the company that this plan is not acceptable.

Mr. J. C. Reiff, Secretary of the bondholders' committee, has issued a circular stating that the default in interest having been made June 1, the trustee under the first mortgage has been given notice to take the proper legal proceedings to enforce the rights of bondholders.

New York, Lake Erie & Western.—This company makes the following statement for April and the seven months of the fiscal year from Oct. 1 to April 30, the figures including 68 per cent. of the gross earnings and all the working expenses of the leased New York, Pennsylvania & Ohio road:

	April	Seven months
Earnings	1885.	1884.
Expenses	\$1,463,012	\$1,727,434
	1,199,999	1,334,969
Net earnings	\$260,013	\$392,465
Interest and rentals		
Deficit		

The seven months show a decrease of \$1,836,093, or 14.5 per cent. in gross earnings; a decrease of \$1,639,845, or 16.4 per cent. in expenses, and a decrease in net earnings of \$196,249, or 7.3 per cent.

The earnings and expenses of the Erie lines proper, excluding the New York, Pennsylvania & Ohio, were:

	April	Seven months
Earnings	1885.	1884.
Expenses	\$1,201,648	\$1,397,726
	905,842	958,377
Net earnings	\$295,806	\$439,349
Interest and rentals		
Deficit		

This shows for the seven months a decrease in gross earnings of \$1,497,414, or 14.5 per cent.; a decrease in expenses of \$1,094,866, or 14.9 per cent., and a resulting decrease in net earnings of \$402,548, or 13.7 per cent.

A comparison of the two statements shows that for seven months the 68 per cent. of earnings of the New York, Pennsylvania & Ohio amounted to \$2,059,673, while the working expenses were \$2,080,255, showing a loss of \$20,582 on the lease, against a similar loss of \$226,880 last year.

New York & New England.—The Massachusetts Supreme Court, on the application of James F. Smith, to enjoin the company and the American Loan & Trust Co. from exchanging car trust certificates for second-mortgage bonds, has dismissed the bill on the ground that there is nothing illegal about the agreement or its details.

New York, West Shore & Buffalo.—No new plans of reorganization have been submitted this week so far, but a movement is in progress to form a new committee of bondholders who are not interested in the North River Construction Co. or in the terminal property. This movement is said to have the backing of a large number of those bondholders, including nearly all the Philadelphia interest.

This Philadelphia interest has been increasing of late by purchase of bonds, and the latest rumor is that control of the road is to be obtained by the Pennsylvania Railroad Co., its object being to reorganize the company as soon as possible, and to retain the management of the road in its own hands. The West Shore could be used by the Pennsylvania very advantageously in a railroad war, and might also be of much advantage to it in preventing the construction of the South Pennsylvania road, or in checking the competition of that road if it is built. In a way that can readily be understood, the West Shore in Pennsylvania hands would be a very effective weapon either of offense or of defense.

The new committee has issued the following circular to the bondholders:

"It is unnecessary to enumerate the plans which have been suggested for reorganization of the West Shore property, or to state the fact that none of them have been accepted, for the reason that they have all proposed to conserve the interest of the holders of junior or other securities at a sacrifice to a greater or less extent of the interests of the bondholders.

"Suffice it to say that though nearly a year has elapsed since appointment of the Receivers, no progress has been made in settlement of the complications surrounding the property. On the contrary, its affairs are in a worse condition to-day than ever, and instead of there being reason to hope for a change for the better, the fact is evident that every day's further delay only serves still more to weaken the bondholders' position, and to a still greater extent to lessen the security of their bonds.

"It becomes imperative for the bondholders therefore to combine and take immediate action to protect their own interests.

"To that end the undersigned—themselves bondholders and with no interest in the property, directly or indirectly, except as such—constitute a committee for the purpose of enforcing all the rights of the bondholders under the mortgage, and of securing to them ownership of the property which it covers at the earliest possible date. That the efforts of the committee will meet with vigorous opposition is evidenced by the oft-repeated threats on the part of those whose representations induced purchase of the bonds that foreclosure of the mortgage can be delayed for many years.

"But the committee—satisfied that to foreclose the mortgage and take the property is the only way now open to the bondholders—is ready to accept the issue, and to undertake the work, scarcely more in the interest of every investor in the country, to vindicate the fact that a mortgage upon a railway, equally with a mortgage upon real estate, covers something as a security, and carries with it rights which are incontestable. In pursuance of its labors, the committee pledges to the bondholders all possible energy, persistence, and singleness of purpose.

"The strength of the committee, however, and its power to accomplish the work which is before it will depend entirely upon the support it receives from those whose interests it proposes to serve. It is therefore hoped that the bondholders, appreciating this fact, will extend to the committee their prompt and earnest support. Without it failure of the committee's effort will be inevitable, but the committee is convinced that with such prompt and earnest support the threats as to delay will prove in vain, and that the day is not far distant when the West Shore bondholders will be owners, with undisputed title, of all the property covered by the mortgage which their bonds represent.

"When that result has been accomplished the bondholders will be in position to negotiate, if they shall then desire to do so, with the representatives of other interests, for reorganization of the West Shore and its associate properties. If the purpose of the committee has your approval, please sign the inclosed agreement and return without delay to the Chairman.

"Frederick Taylor, Chairman; R. C. Martin, Oliver Harriman, Edwin Einstein, J. N. Hutchinson, Samuel S. Sands, John N. A. Griswold, William D. Morgan, William Lummis, E. N. Taitor, Henry B. Hammond."

Northern Pacific.—The Land Department in May sold 46,300 acres of land for \$253,472, with town-lots to the amount of \$1,126. The sales show an increase of 1,911 acres over May of last year, while the average price per acre was \$5.47, against \$4.40 last year.

Ohio & Mississippi.—This company furnishes the following statement for the month of April:

	1885.	1884.	Inc. or Dec.	P.c.
Earnings.....	\$288,964	\$206,476	D. \$17,512	5.7
Expenses.....	221,641	263,251	D. 41,610	15.8
Net earnings....	\$67,323	\$43,225	I. \$24,098	56.0
Per cent. of exps ..	76.7	86.0	D. 9.3	

The increase in net earnings, it will be seen, was due entirely to the large reduction in the working expenses of the road.

Old Colony.—The plans for the new passenger station in New Bedford have been drawn by Mr. Henry Paston Clarke, of Boston, and the building is to be erected this season. It is to be of Philadelphia buff brick, with trimmings of freestone, the roof being covered with red slate with tile ridges. The style of the architecture will be Romanesque, and the dimensions are 159.3 by 37.8 ft. It will be one story in height.

Oregon Improvement Co.—This company makes the following statement for April and the five months of the fiscal year from Dec. 1 to April 30:

	April.	Five months.—
	1885.	1884.
Earnings.....	\$230,768	\$290,392
Expenses.....	185,608	221,923

Net earnings..... \$45,160 \$68,469 \$202,128 \$251,417

The statement covers all the different properties of the company.

Pennsylvania.—This company's Lewisburg & Tyrone Division is now completed to Lemont, Pa., 2 miles west of the old terminus at Oak Hall, and 58 miles from the junction with the Philadelphia & Erie Division at Montandon.

Pennsylvania & Martin's Creek.—Work is to be begun immediately on a bridge over the Delaware River at Martin's Creek. It will be 500 ft. long, in 5 spans, and will be 48 feet above the water level. The road is to connect the slate quarries at Bangor, Pa., with the Belvidere Division of the Pennsylvania Railroad at Martin's Creek.

Pennsylvania, Slatington & New England.—On suit of the Metropolitan Trust Co., of New York, the United States Circuit Court at Trenton, N. J., has appointed a Receiver for this company's property. The company, which is successor to another known as the South Mountain & Boston, was organized to build a railroad from Hamburg, Pa., across New Jersey to a connection with the Erie at Pine Island, N. Y. A good deal of work has been done at different times on the grading and a bridge over the Delaware, but no part of the road is finished or in operation.

Philadelphia & Reading.—The managers of the company have selected as trustees to represent them in the reorganization, H. A. Dupont and H. Mc. K. Twombly. The trustees representing the bondholders have already been selected.

Pittsburgh & Western.—In the United States Court in Pittsburgh, June 4, application was made on behalf of the company to authorize the Receiver to borrow money to pay interest on the floating debt and other claims, amounting in all to \$313,451; the revenue from certain sources to be applied to the payment of this money.

Portland & Ogdensburg.—The United States Circuit Court in New Hampshire has granted a final decree foreclosing at the expiration of six months from May 12 last the mortgage of 1871 on this road. The decree is concurrent with that already granted in Maine and is for a strict foreclosure—that is, the road will not be sold, but if it is not redeemed by the stockholders before the expiration of the six months allowed, it will become the property of the trustees and may be disposed of as they see fit.

St. Louis, Fort Scott & Wichita.—This road is now running regular trains to the new terminus at Anthony, Kan. The company is building extensive stock yards 3 miles below Anthony and 7 miles from the Indian Territory line. The drive, three-fourths of a mile wide, has been secured from these stock-yards to the south line of the state, which will give cattle driven up through the Territory uninterrupted access to this road.

This road has been showing a large increase in earnings lately, as we have from time to time noted in our columns.

St. Louis & Kansas City Air Line.—A preliminary organization by this company was recently made at a meeting held in Columbia, Mo. The projected line is to run from St. Louis to Kansas City, crossing the Missouri River at Stowell's Ferry above St. Charles, and running through Warren, Montgomery, Callaway, Boone, Howard and Lafayette counties.

St. Paul, Minneapolis & Manitoba.—A Chicago report that the controlling interest in this road had been offered to the Chicago, Burlington & Quincy Co. by President Hill is denied by that gentleman, who says that the owners of the road have no present intention of selling or leasing it, considering it a property of such prospective value that they are quite satisfied to hold it.

Shenandoah Valley.—The first-mortgage bondholders' committee reports that the signatures of the holders of \$800,000 in bonds have been secured. The committee expects before long to have a majority of the bonds, and as soon as secured notice will be given to take steps to foreclose the mortgage.

Shenango & Allegheny.—A bill for the foreclosure of the first mortgage on this road has been filed in the United States Circuit Court in Pittsburgh. The road has been in possession of a receiver, appointed some time ago on application of the second-mortgage bondholders. The road is a coal road in western Pennsylvania, 63 miles long in all, and the first mortgage is for \$1,200,000. It is largely owned in England.

South Pennsylvania.—A suit has been begun in the New York Superior Court, by Mr. Ralph Bagaley, of Pittsburgh, to enjoin all further proceedings under the agreement by which syndicate was formed for the building of this road, and for the appointment of a receiver to take charge of the affairs of that syndicate and wind them up. The complaint states the circumstances attending the organization of the syndicate which subscribed \$15,000,000, of which Mr. Bagaley took \$1,100,000, and asserts that the agreement has not been carried out; that the money paid in has been turned over to an irresponsible corporation, known as the American Construction Co., and it further charges that the contract let to that company for building the road is illegal. As the project for which the syndicate was formed cannot therefore be carried out without violation of the law, the complaint asks that the syndicate be dissolved, and its assets distributed among its original subscribers. The court refused to grant any preliminary injunction, but set the case for a hearing on June 18.

Syracuse, Geneva & Corning.—This company has completed a branch line from Dresden, N. Y., westward 5 miles to Penn Yan, N. Y. This branch is expected to secure considerable local traffic from fruit growers around Crooked Lake, who ship chiefly from Penn Yan, and whose business has been very considerable and is rapidly increasing.

Troy & Greenfield.—The bill providing for the sale of this road, including the Hoosac Tunnel, to a corporation which shall operate a consolidated line from Boston to North Adams, has been signed by the Governor and has now become a law. The new corporation, under the law, must be organized within three months, and must own a completed line of road from Boston to a connection with the Troy & Greenfield.

Union Pacific.—The statement for April and the four months to April 30 is as follows:

	April.	Four months.—
	1885.	1884.
Earnings.....	\$1,987,191	\$2,116,519
Expenses.....	1,333,401	1,248,162

Net earnings... \$653,890 \$868,357 \$2,242,113 \$1,981,954
Per cent. of exps .. 67.1 59.0 68.9 72.3

For the four months the gross earnings increased \$47,141, or 0.6 per cent., while the expenses decreased \$213,018, or 4.1 per cent., the result being a gain of \$260,159, or 13.1 per cent. in net earnings.

Virginia & Carolina.—It seems to be certain now that the reported sale of this unfinished road to parties interested in the Atlantic Coast line, has been made, and that the road will therefore not be built. The City Council of Petersburg, Va., which city has subscribed \$100,000 to the stock of the company, has ordered an investigation.

Wabash, St. Louis & Pacific.—In the United States Circuit Court in St. Louis, June 6, the Farmers' Loan & Trust Co., of New York, as trustee under the first mortgage on the Missouri, Iowa & Nebraska road, now part of this system, filed an application for the appointment of a special receiver for that road, to operate it for one year from the date of the order, if granted. The Court referred the application to the Master, who is to take testimony and report during the present week. The Missouri, Iowa & Nebraska line extends from Keokuk, Ia., to Hustonton, 131 miles.

A press cable dispatch from London, June 3, said: "The committee of bondholders of the Wabash Railway Company have arranged to send to America Mr. Bald, one of their number, together with Mr. Sneath, an expert accountant.

Upon the arrival of these two gentlemen in the United States, a third person, an American expert, will be selected, and conjointly the three will make an investigation of the accounts of the Wabash Company, and inquire into the prospects of the road."

A dispatch from St. Louis, June 10, says: "At the instance of the Farmers' Loan & Trust Co., of New York, trustees of the underlying mortgage on the Missouri, Iowa & Nebraska Railroad, Judge Treat, of the United States Court, yesterday appointed Thomas Thacher, of New York, as Receiver of the said road. Mr. Thacher is to qualify and take possession July 1."

Waxahachie.—Two plans are under consideration for the construction of a railroad from Waxahachie, Tex., to a connection with the Texas & Pacific. The road is expected to control the local business of a considerable extent of country, and there is some competition between the town of Dallas and Fort Worth to secure the terminus. Dallas has offered a subsidy of \$100,000, but Fort Worth offers \$50,000 more, and claims to have that amount actually secured.

Western Union Telegraph.—This company makes the following statement for the quarter ending June 30:

	1885.	1884.	Inc. or Dec.
Net revenue (partly estimated).....	\$1,300,400	\$1,750,000	D. \$350,000
Int. and sinking fund.....	143,768	144,000	232
Balance.....	\$1,256,232	\$1,606,000	D. \$340,768
Dividends.....	1,199,841	1,399,800	D. \$199,959
Balance.....	\$56,391	\$206,200	D. \$149,809
Surplus, April.....	\$4,246,943	\$4,049,817	I. \$197,126

Total surp. July 1... \$4,303,334 \$4,256,017 I. \$47,317

The actual figures of the statement for the quarter ending March 31, 1885, show that the net revenues were \$1,358,876, and the surplus, after paying interest and dividends, was \$15,276 for the quarter.

The express business for the year amounted to 1,309 tons carried 149,754 miles.

The earnings for the year were:

	1883-84.	1882-83.	Inc. or Dec.	P. c.
Passenger.....	202,042	202,889	D. 847	0.4
Freight.....	219,482	224,871	D. 5,339	2.4
Service and switching.....	82,405	59,794	I. 22,671	37.8
Total.....	503,989	478,504	I. 16,485	3.4
Pass. car mils.....	901,010	862,164	I. 38,846	4.5
Freight car miles.....	3,147,556	3,276,345	D. 128,789	3.9
Passenger carried.....	154,351	152,754	I. 1,597	1.0
Passenger-miles.....	5,894,869	5,955,946	D. 61,137	1.0
Tons freight carried.....	202,732	199,274	I. 3,458	1.7
Ton miles.....	14,851,098	14,635,451	I. 210,247	1.5

Av. train-load:

Passenger, No.....	29	29	....
Freight, tons.....	63	63	I. 3. 4.6

The general account, condensed, is as follows:

	Stock.....	Bonds.....	Bills, accounts and balances.....	Unclaimed interest, etc.....	Profit and loss.....
Stock.....					\$2,578,000
Bonds.....					2,696,917
Bills, accounts and balances.....					388,617
Unclaimed interest, etc.....					21,377
Profit and loss.....					110,658

Total..... \$5,283,93

Road, equipment and real estate..... \$135,430

Stocks and bonds owned..... 1,03,035

Supplies..... 209,986

Bills, accounts and balances..... 63,825

Cash..... 5,795,569

The funded debt includes \$1,417 fractional bonds and \$6,000 old Charlotte & South Carolina bonds; \$189,500 Columbia & Augusta firsts; \$20,000,000 Charlotte, Columbia & Augusta firsts and \$500,000 seconds.

The traffic for the year was as follows:

	Train miles : 1883-84.	1882-83.	Inc. or Dec.	P. c.
Passenger.....	202,042	202,889	D. 847	0.4
Freight.....	219,482	224,871	D. 5,339	2.4
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